The spear in Anglo-Saxon times

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The Spear in Anglo-Saxon Times; an abstract.

A survey was undertaken to determine the nature and place of the spear during the Anglo-Saxon period, based both on material remains and literary evidence.

From their origins to the period of the migrations iron spear-head forms had remained conservative, typically leaf-shaped and often midribbed.

Subsequent to the migrations traditional forms survive virtually unmodified throughout Merovingian times on the continent; but in England a divergent series of distinctly insular forms emerge, which are predominantly angular in profile. Separate groups are recognisable, defined by form and significant in chronological and geographical distribution. Smaller numbers of "later" groups are similarly distinguishable by reason of form, but dating is latterly more dependent on the less reliable evidence of comparison with manuscript illustrations.

No formal break seems to occur at the Conquest, the later series extending uninterrupted into the earlier medieval period, with the effective break appearing instead during the twelfth century.

Simply-made as well as complex, spears are the products of both humble and quality forges so that the critical examination of their composition forms a particularly useful index of the techniques of the Dark Age smith.

The wide variety of spear-names are examined, showing something of the nature of different types of the weapon. And in the light of this, and with the aid of manuscript illustrations, it is possible to reconstruct the manner of

use of the various kinds of darts and hand-spears mentioned in contemporary texts.

Simultaneously the literature indicates a wider symbolic significance for the spear generally in Anglo-Saxon society. An attribute of the god Woden, it has recognisable poetic overtones of war and death. At the same time it is seen as the concrete symbol of the free man's status, and one of the insignia of Germanic kingship.

THE SPEAR IN ANGLO-SAXON TIMES.

A Thesis

presented in partial fulfilment of the requirements for the degree of PhD.

in the University of Durham,

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MJS.

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In quotations thorn is normalised to eth, and length marks are omitted.

INTRODUCTION

One of the most frequently mentioned weapons in Old English literature, and at the same time one of the most regular exhibits in the show cases of public collections, it is not surprising that few commentators on the material remains of the Anglo-Saxon period have failed to appreciate the high incidence of the spear as an object - historiarum reliquiae. Baldwin Brown, followed by most other general commentators, remarks of the variety of weapons to be found in the graves of the pagan period, that although:

> the spatha, the seramasax and the axe seem to be comparatively rare weapons among the Anglo-Saxon warriors, these seem to have been universally armed with the spear. Spear-heads are by far the commonest of all the weapons found in Germanic cemeteries, and appear in all parts[1]...

And yet spears have perhaps caused less concern than any other type of object in descriptive archaeological reports. Certainly before 1945 spear-heads were barely noticed, if at all, and were apparently regarded as too commonplace an occurrence to require verbal description in the face of more immediately attractive jewellery, glass or even swords.

It may have been due in part to this very plethora, as

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1. Baldwin Brown G. (1915) The Arts in Early England, III p.234.

well as to the inherent difficulties of applying typological definitions to such an apparently amorphous body of material, that spear-heads have been the subject of little or no systematic study. Early commentators were united in the opinion that this kind of object was just not classifiable.[1] Among more recent general commentators, one part have suggested that Anglo-Saxon spears are infinitely and insignificantly varied,[2] and the other that they are uninterestingly and insignificantly uniform.[3] It is out of this conflict that the present study emerges.

Since the time of the earliest investigators like Douglas and Faussett, metalwork of an essentially ornamental nature has, rightly, occupied the forefront of academic archaeological discussion. But with recent developments in critical archaeological technique, it is becoming increasingly clear that time might be usefully spared in the consideration of remains which, although less immediately appealing in themselves, may serve to throw further light on the problems of any particular

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1. cf. such continental scholars as: Cochet J.B.D. (1859) Le Tombeau de Childeric, p.140; or Bequet A. (1891) Les cimitieres de la Forteresse d'Eprave; Ann. Arch. Soc. Namur XIX, p.450.
2. For instance, Baldwin Brown G. (1915) loc. cit.
3. For instance, Wilson D.M. (1960) The Anglo-Saxons, p.116, or Oakeshott R.E. (1960) The Archaeology of Weapons, p.60

site, period or culture under review. Within the Anglo-Saxon period proper, as long ago as 1945 Leeds introduced his seminal study "The distribution of the Angles and Saxons archaeologically considered", thus:[1]

> Even though they (the richer and more pretentious material and products) afford valuable indications of the tribal units consituting the first settlers and of the territorial limits of thos units and of their interactions with one another, nevertheless if no account be taken of the less spectacular classes of ornaments and objects deposited in the graves, the picture drawn must necessarily remain incomplete. Only the highlights have been portrayed; the details and much of the background has been omitted. It is only from a study of these details that many interesting data can be obtained.

It is in the words of Leeds that the justification of this study lies.

Iron-work, has until recently, been the least regarded of all dark Age antiquities, although it seems likely that of all periods, the Anglo-Saxon was the age <u>par excellence</u> of the weapon smith. The sword, as Mrs. Ellis-Davidson has already shown,[2] can be both exciting and productive as an object of study, but although the spears considered here might seem slighter or less prepossessing, they need be none the less rewarding in the conclusions drawn as to the cultural development of the Anglo-Saxon period, whether

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1. <u>Archaeologia</u> XCI, p.2
2. Ellis-Davidson, H.R. (1962) <u>The Sword in Anglo-Saxon England</u>.

the spear be used as an objective index in itself, or in its relationship to other remains. It is possible to show for instance, that in the Worthy Park cemetery, burial continued rather longer than indicated by other kinds of grave goods.[1]

Some of the very characteristics which earlier commentators found inhibiting might well be used to advantage. The very frequency of incidence and multiplicity of forms might prove the very strength of a typological survey, classification of this kind being theoretically endued with validity in direct proportion to the extent of evidence available; i.e. the more common the object subject to analysis, the more acceptable the conclusions drawn are likely to prove. There are, of course, many obvious difficulties in the way of typological classification of this type of object, and still more to deducing chronological sequences, but the fact that spears are found over the entire area of settlement, and at every period, makes the spear-head admirably suited in some respects to such a survey. The nature of the ordinary spear-head of the pagan period is more likely to throw light on the various competences of the typical village smith than the rarer and more expensive sword, which might well have been the

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1. Notes for a forthcoming paper edited by Mrs. S. C. Hawkes.

product of a specialist forge alone. This is not to imply that every spear was likely to have been produced on a back-yard basis, for many, like the splendidly pattern-welded or richly inlaid examples, are clearly the work of a master smith. The range is sufficiently great, however, to provide the best available criterion of the skills of the Dark Age smith and their development until the end of the period. This is to utilise the spear as an objective index in itself. More rewarding perhaps is its study in relationship to established factors, to provide part of the "details and background" for Leeds's "highlights". To a rather limited extent it is possible, for instance, to deduce from a study of classifiable groups of spear-heads, distinct cultural units; the clear division in this respect between the East Midlands/Upper Thames axis, and the "Jutish south-east", is perhaps to be seen at its most obvious in a comparison of the distribution maps for groups B1/2 and B4;[1] or an examination of the K series might serve to illustrate a postulated Celtic influence on the West Saxon settlers of the Thames Basin.[2]

In certain instances a spear-head might prove the only classifiable form of object noticeable as definite evidence

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1. Figs. 13, 15, 19.

2. See pp. 217-30.

for the pattern of Germanic settlement in a given area. The single male burial is a common enough feature in many regions during the time of the Migrations, and hitherto such evidence might only have been used in the most general of terms, with our chronological indices having emanated almost entirely from the accompaniments of female burial;[1] but the single spear-head of group G1 from Worle in Somerset for instance, the sole surviving relic of what seems to have been a single male burial, provides valuable evidence for Saxon penetration into the south-west, at a time far earlier than any for which we had hitherto possessed material evidence.

And in addition, more reflectively, the spear proves to have had various distinctive connotations for the Anglo-Saxon people; used throughout the period as a sign of rank, and characterising in the literature so many concepts fundamental to the Old English ethos. It provides a valuable, if unfamiliar point from which the cultural relationship of the insular Heptarchy with its Germanic antecedents might be viewed afresh, and later, the extent

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1. Miss Evison, however, has recently published a valuable study of shield bosses from later pagan graves, (Evison VI. (1962), Sugar loaf Shield Bosses; Ants. J. (pp.38-96) following work on continental parallels by Zeiss H. (1950), Reinecke Feschrift, pp.173-80; while the implications of other continental studies, like that of Böhner on seaxes (Böhner K. (1958)) Die Fränkischen Altertümer des Trierer Landes, I, pp.130-145, might equally well be read into insular contexts, with appropriate modification.

to which the Old English state survived the eleventh century.

Past Studies Comment on the nature of Anglo-Saxon spears in general begins as soon as the widespread publication of pagan period cemeteries brings a large amount of archaeological material to light for the first time, that is during the eighteen-fifties with Roach-Smith's edition of Faussett's extensive work in East Kent, Neville's publication of Little Wilbraham, and that of Wylie on the Fairford graves, but above all perhaps, the redoubtable Akerman's pioneer studies at Harnham Hill, Brighthampton and Long Wittenham. But such observations as were made at this early time were naturally enough sparse and generalised, for neither were typological techniques yet developed for general use, nor, with lack of public collections, were the commentators concerned to notice examples not discovered either in their own excavations, or immediately available to themselves. But this in itself is a considerable advance on the complete ommission of any notice whatever of the more trivial grave goods, or at most the mere mention of the objects' discovery without objective description, or observation of its position within the grave. The accounts of Fausett, despite some wooliness in definition of terms, are perhaps

the most adequate at this period.

Thus it is only from the middle of the last century that either the compilers of general archaeological surveys, like Akerman,[1] Kemble[2] or Roach-Smith,[3] or the authors of particularised articles, like Wylie,[4] Hewitt,[5] or Akerman[6] again, had even a basis of material upon which to begin. On the archaeological remains they had only the most generalised observations to make: that these weapons were made of iron, that the sockets seemed invariably to be split to receive the shaft, and that they adopted a large variety of forms and a wide range in size. Usually these comments derive from the examination of the few examples available from a single cemetery. Strutt naively attempts to infer actual forms from the conventional depictions of Anglo-Saxon illuminations, adding only a thickened shaft.[7] Especial emphasis was frequently

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1. Akerman J. Y. (1847) An Archaeological Index, pp.134-5; 1855, The Remains of Pagan Saxondom. pp.x, 21, 48 and 50.
2. Kemble, J. M. (1863) Horae Ferales. pp.208-9.
3. Smith C. R. (1848-80) Collectanea Antiqua, III, pp.6-7. V. 130-5.
4. Wylie, M. W. (1853) Remarks on the Angon, or barbed javelin of the Franks as described by Agathias; Arch. XXXV pp.48-55; Some account of the Merovingian cemetery of Envermeu; also of certain weapons of the Franks; Arch. XXXV, pp.223-31.
5. Hewitt, J. (1855) Ancient Armour and Weapons in Europe, pp.21-31
6. Akerman, J. Y. (1851), On some of the weapons of the Celtic and Teutonic races; Arch. XXXIV, pp.171-189.
7. Strutt J.(1842) Dress and Habits of the People of England, I, p.24.

placed on an attempt to define and identify the more familiar literary-historical references to Germanic weapons like the angon of Agathias, the lancea uncata of Sidonius Appolinarius, or the framea of Tacitus, with one or other of a series of inadequately surveyed or defined objects. This arbitrary use of linguistic labels which are read into the archaeological remains without any definition or common connotation between one commentator and another,[1] tends to survive in an over-confident reliance on linguistic evidence to the present day.[2]

This line of comment is continuous throughout the second half of the last century, through for instance the French antiquarian Berthelot,[3] but amongst continental scholars, Rygh[4] and Lindenschmitt[5] publishing Norwegian and German rèmains respectively, set a higher standard of scholarship with fuller descriptive accounts, and more, and more adequate, drawings. Still at this date on the continent of Europe there is only a limited amount of known

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1. Eg. Wylie, M. W. (1853) Teutonic remains found near Dieppe; Arch. XXXV, p.111; or Smith C. R. (1858) On Anglo-Saxon Remains recently discovered in Kent...; Arch. Cant. I, p.48. For Faussett all spears are either pila or hastae.
2. As late as (1936) ET. Leeds (Anglo-Saxon Art and Archaeology, p.46) uses "pilum" and "angon" quite arbitrarily; and cf.Wilson's application of "angon" (1960) pp.47,123).
3. Berthelot A.A.L. (1893) The Industrial arts of the Anglo-Saxons, pp.20-6.
4. Rygh O. (1885) Norske Oldsager, pp.72-3, figs.517-59.
5. Lindenschmitt L. (1880) Die Alterthümer der Merovingischen zeit, pp.162-84.

material to utilise, but evidence is deduced from a wider range than hitherto, with examples noticed in burgeoning public and private collections. But still the scope of comment is confined to the limits of the hand-book, and drawings tend to illustrate an average selection of pieces, rather than a considered classification, duly dated and statistically assessed. Lindenschmitt in particular, however, perhaps influenced to some extent by the philologist Schulz,[1] has taken more proper notice of some of the available historical evidence that may be brought to bear on archaeological problems, and uses the comparative evidence of manuscript illumination critically, which if only to a tentative extent, is a timely redress to Hewitt's meretricious choice.

The parallel work to cover Anglo-Saxon antiquities was to be Baldwin-Brown's compendious survey,[2] which seems to have made use of most of the material then available in the major public collections; but with a commentary on the spear, representing no more than a culmination of the line of criticism begun by Akerman fifty years earlier.

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1. Schulz, A. (1867) Zur Waffenkunde des alteren deutschen Mittelalters.
2. Baldwin Brown, G. (1915) III, pp.234-41.

Such general works as followed, like that of R. A. Smith,[1] did little but follow the lead of this acknowledged master, and as late as 1948, despite the intervening work of Wheeler, Ellhåge[2] makes no markedly new contribution to the study.

The first detailed study appears with the compilation of the catalogued material of the London Museum, published by Wheeler as two volumes between 1927 and 1935[4]. It is unfortunate that Wheeler should have chosen to begin with the less easily dated and classifiable later material, and in 1927 he confines himself to noting that the apprent distinction between spears of Anglo-Saxon and of Viking origin, was that the latter showed a closed tubular socket, and that it is possible to recognise a spear-head of Scandinavian origin by a combination of this with other less constant, and unspecified, characteristics.[5] As a result, while admitting that in fact no hard and fast boundary can be drawn in this country between the two series, he find it desirable to reserve all the spear-heads with cleft sockets for inclusion in the Anglo-Saxon catalogue.[6]

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1. Smith, R. A. (1923) British Museum: a Guide to the Anglo-Saxon and foreign Teutonic antiquities, pp.65,68 etc.
2. Ellehåge M. O. (1948) The spear traced through its post Roman development.
4. Wheeler, R.E.M. (1927) London and the Vikings, pp.26-9 (1935) London and the Saxons, pp.162-74.
5. (1927) pp.26-7
6. loc. cit.

Wheeler was able to rely, by this time, however, on the remarkable work undertaken by Petersen on the Viking period weapons of Norway,[1] a work perhaps less accessible to many contemporary scholars on account of the unfamiliar language in which it had been written. Petersen's study is significant if for nothing else than the date at which he was able to embark on such a comprehensive survey of Norse material, the results of which remain more or less definitive even now. He divides the spear-head from Viking contexts into thirteen groups, lettered A to M; a classification based primarily on a formal typology, but with due consideration of dated examples and weapon-group associations. References to dateable associated finds are not always adequately made, however, and in a number of cases his typological definition appears too vague to be capable of supporting the rigid classification of such varied material. His type C, for instance, is said to occur both with and without "wings", so that an A type might look like a C type without these additions,[2] and the second sub-group of his type D seems to overlap in a mysterious manner with the rather lesser group of type H.[3] Moreover, the form of classification suggested appears too inflexible to account for certain later discoveries, like the bulky foliiform blade from Trelleborg.[4]

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1. Petersen, J. (1919) De Norske Vikingesverd, pp.26-36
2. p. 24.
3. loc. cit.
4. Nørlund, P. (1948) Trelleborg, p.137, tav. xl(2).

Neither does Petersen forward any concept of continuity or development of his types. He sees angular blades occuring only late in the period, with no reference to the commonly angular forms of Merovingian times in the north. Despite these uncertainties, however, this study remains a mile-stone in the study of particular groups of objects such as this. While there is no pretence at completeness, there is what is apparently a wide reference both to published material, and unnoticed examples in public collections; but the work is given an entirely archaeological basis without recourse to either philological evidence, or representation from manuscript illuminations.

In the light of this, Wheeler's later work on the spear-heads of the pagan Saxon period, or rather, those with "unwelded or open sockets", is much more adequate, than his earlier simple and often invalid transposition of Scandinavian observations into the English scene. The work suffers considerably, however, from the general limitations of a museum catalogue. He describes and illustrates most of the different types of spear-head at that time in the collections of the London Museum, but these are by no means exhaustive; spear-heads "with

angular profile" are all lumped together, for instance,[1] and simple folliform blades find no place whatever. At the same time, it happens that the greater bulk of the museum's collection are in the form of water-finds, largely from the Thames, with no dated contexts as a result; and although some small reference is made to examples published elsewhere, the comment is brief and without argument. Thus it is that spear-heads "with countersunk or incised midrib"[2], our group K1, are confidently attributed, not to the Celtic tribes of the third to fifth centuries, but to the Anglo-Saxon seventh and eighth. Reference to parallels from Wüttemberg and Scandinavia seems to be based on a misunderstanding of published line figures rather than personal knowledge. For earlier, as well as middle and later Saxon examples, the division Wheeler adopts is essentially formal, and although limited, is well illustrated with both photographs and line drawings, and no advance has hitherto been attempted on insular material. Certainly the work did not achieve the currency it deserved, and the remarks of most excavators on the spears they find, remain vague.

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1. Op. cit. p.163
2. Ibid. pp.164-5

By far the most competent work undertaken on weapons during any part of this period, is that of Petersen's successor Fett, publishing in 1940 an account of Norwegian material of the fifth and sixth centuries,[1] overlapping with, to some extent, and continuing Greig's classification of Roman Iron Age material into sets.[2] Although entirely archaeological in basis, Fett's study claims to have accounted in listed form, for all material available to him before 1934,[3] and gives consideration in a more specific manner than Petersen to dated and associated weapon groups.[4] A detailed formal classification, well illustrated by photographs, though in many cases only of incomplete or badly decayed examples, covers a series of barbed javelins lettered from A to H, and a further series of lance-heads lettered from A to U. Despite careful verbal definition,[5] the detailed typology deduced by Fett tends to break down in one or two instances. His lance species D, for instance, clearly

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1. Fett, P. (1940) "Arms in Norway between 400 and 600 A.D."; Bergens Museums Aarbok, 1938 pp.11-37; 1939, pp.1-45.
2. Greig, S. (1926) Hadelands eldste bosetningshistorie, pp.46-85. Fett's group I, equates with Grieg's group VII, composing material of transitional Roman-Migration times.
3. (1939) p.3. Single pieces of Javelin species B are judiciously ommitted, (1938) p.13.
4. A characteristic feature of Scandinavian finds at this period, but apprentaly inapplicable to insular material.
5. Cf. the note to "socket", (1938) p.11.

breaks down into at least two distinct groups, as seen in figures 20-22;[1] and in one instance, class P consists of just two specimens placed together on account of profile alone,[2] hardly a valid typological method in itself, especially when the blade cross section of one is distinctly helicoidal, which might more properly be considered a class of one, and as such untenable.[3] Fett has apparently erred in the opposite extreme to Peterson, with over elaborate subdivision and rigid verbal definition reducing to a minimum the possibility of merged or overlapping classes. This may be due in part to the fact that despite completeness, the number of lances available for analysis amount to only some 230 definable specimens,[4] many of which are badly preserved and classification therefore admittedly dubious.[5] Neither is there any indication of antecedent or descendent forms; a study of the relationship between Fett's own series, and those of Petersen might have proved particularly valuable,

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1. (1939) plates 5 and 6
2. (1938) p.28.
3. This particular example, from Stryn, Sogn og Fjordane, seems likely, in fact, to be of Anglo-Saxon origin; see pp. 173-4.
4. (1938) p.19. Fett implies that this is a significantly large range; but cf. of the three and a half thousand references of the insular lists, which still results in formal and chronological indefiniteness for certain groups.
5. Ibid., p.31

the necessary hiatus felt in collections of Western Europe and England, being filled only in Scandinavia.

Since this time, a useful survey of Frankish weapons of the Rhine-land Palatinate has been made by Böhner,[1] with well dated references, but illustrating just types in their variety rather than with any statistical analysis. In this respect Böhner's otherwise admirable work, resembles Salmo's earlier study of Merovingian period weapons in Finnland,[2] a volume important again in technique, but with little immediate reference to Anglo-Saxon studies.

From an archaeological point of view, Keller, writing in 1906,[3] works essentially within the tradition of the previous half century, quoting at the head of her section on the spear, a bibliography only of the works of: De Baye, Neville, C. R. Smith and Wylie, and making no attempt to elaborate on their most general observations, remarking:

> A minute description ... can not here be attempted, the ordinary varieties and a few of the rarer ones only will be discussed, accurate classifications being found in Hewitt and Lindenschmitt.[4]

But for Keller, archaeological remains form essentially secondary source material, useful merely in so far as

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1. Böhner, K. (1958) pp.146-62; here the primary classification is of "open and closed" sockets, which is of no formal value, although apprently of use in Rhineland contexts for relative chronology. No allowance is made for formal continuity.
2. Salmo, H. (1938) Die Waffen der Merowingerzeit in Finland, pp.164-275.
3. Keller, M. L. (1906) The Anglo-Saxon Weapon-Names, pp.18-31.
4. Op. Cit. p.23

they might provide specific *exampla* for generalised theories. She is concerned with no detailed analysis, but rather the social nature of *heriot*, or the manner of use of the *angon*; and her attempts to identify historical-literary references with particular concrete items are as dubious as those of Hewitt whom she follows. She equates the *lancea ancatis* of Sidonius Appolonarius, for instance, equally with the Frankish *lance à crochets*, and the lugged specimens of our series T.[1] She attempts too, also following Hewitt, invalid comparison of actual examples and manuscript representation.[2] The faults of her first, archaeological section, are just those of her predecessors, whose arguments she uncritically adopts, but apart from the lack of integration between the two sections, this in no way detracts from the value of her second part, and it is clear that the philological evidences[3] have received the greater part of her attention. The alphabetical lists of such nominal forms as occur, with all their declensions, are more or less complete and from a purely linguistic point of view, still valid, although a good deal of her philological and etymological interpretation must now be considered out of date. The results, however, are just those of a lexicographer's word list, and the comment,

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1. *Ibid*, p.30
2. *Ibid*. pp.26, 29-30
3. *Ibid*. pp.128-55

from an integrated point of view, limited, brief and unsupported. There is no indication of the disparate dating of so many of the references, and it is no doubt misleading to the lay reader to find mention of the Corpus Gloss and to Layamon side by side,[1] when they are, in fact, separated by some five centuries of linguistic development. Neither is there adequate estimation of contextual usage, which forms a major principle of modern linguistic study, and the various caveats involved in the assessment of philological evidences have been ommitted.[2] There are one or two instances of indiscriminate listings,[3] and lack of concurrent commentary gives a false impression of the incidence of any given form. For instance, the Epinal, Erfurt and Corpus glosses are sometimes all noticed separately as though they were entirely unassociated documents,[4] which is as erroneous as to compare the Utrecht Psalter and MS. Harley 603 in this respect. Although she is apprently aware of the often contradictory evidences of historical testimonies,[5] a significant lapse is found in the regular confusion of such integrated comment as there is. Forms from the later

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1. Sub. "spere". 2. see pp. 469-75.
3. Eg. p.130, sub "ætgar/ætgæru", the references WW.23(15) and Corp.922, are, of course, to one and the same gloss.
4. Epinal/Erfurt, does, of course, occasionally give usefully primitive forms.
5. p.20.

classical koinė are read into totally disparate pagan contexts,[1] making no allowance for the overall development of language in relation to physical conditions, through semantic shift, abandoned and newly emergent forms. Previously, however, the only linguistic comment had taken the form of Hodgetts' vagaries,[2] and despite these criticisms, Keller's work remains of the utmost value as a foundation for linguistic study.

Among continental scholars, only Schulz[3] had previously made some brief historical-literary commentary on linguistic specifications, classical as well as Germanic, considering skaft, for instance, although giving greater emphasis, with consequent confusion, to the weapons of the High Middle Ages tourney. Subsequently, the work of Falk on Old Norse literary material[4] is considerably more adequate, making no pretence of having covered the entire field of reference, as Keller did for the Old English canon, but giving a good account, nevertheless, drawn from several sources. He too,

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1. Eg. pp.22-4, or more obviously p.31, where the early A2 type spear-head from Fairford is confidently identified with an Old Norse literary reference, quoted following Wylie, in Latin, but presumably recognisable as to Egilss, Skallagrímssonar 53, which is unlikely to date before the twelfth century. (see p. 331.)
2. Hodgetts J. F. (1884) Older England.
3. Schulz A. (1867) pp.157-78 and passim.
4. Falk H. (1914) Altnordische Waffenkunde, pp.66-90.

however, falls into the error of misreading a linguistic form from a later literary context, into an earlier pagan period, and has clearly little archaeological support for his speculations upon which form of pagan spear-head is to be identified with which twelfth century Eddic word form.[1] Falk's work remains, however, augmented by notes of Jansson,[2] a stimulating and valuable study.

The serious technological study of Dark Age iron-work may be said to have begun with the war-time publication of Salin and France-Lanord,[3] although overtures had begun as long before as 1889 when Lorange had considered some aspects of metalworking in Scandinavia,[4] remarking on self-inlaid "named" swords and pattern-welding in very generalised terms, but including illustrations of a number of Viking period spears with pattern-welding.[5] A later more general work edited by Salin, includes a useful number of more detailed studies,[6] and the work of Salin and France-Lanord together has made a considerable advance in the critical examination of ancient structures by means of microchemical,

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1. e.g. kesjufleinn, p.68.
2. Jansson V. (1943) Vapnen i den Fornnordiska Litteraturen; Nordisk Kultur XIIB, pp.160-72.
3. Salin E. and France-Lanord A. (1943) Le Fer à l'Époque Mérovingienne, p.106 ff.
4. Lorange A. L. (1889) Den Ingre Jernalders Sværd.
5. Op. cit. pl.VII
6. Salin E. (1957) La Civilisation Mérovingienne. vol.III pp.13-23.

micrographical, micromechanical and radiographic analyses; and although rapidly advancing technical methodology has made all sorts of new discoveries possible, in theory at least, no published improvement has hitherto been made on this standard work. The work suffers in principle, however, from having had the admirably detailed studies, made of uncritically selected specimens, significant neither in terms of structure or, more important, of date. There are admittedly, however, frequently external difficulties to obstruct this ideal procedure. It is perhaps partly due to the fact that this work is not as widely known as it deserves, that the iron-work preserved in so many public collections continues to remain in a state of progressive decay.

In this country no such extensive work has been carried out upon Anglo-Saxon iron-work,[1] difficult without the resources of an adequate laboratory, and concentration has been focused instead on purely visual characteristics, although Miss Evison, with the aid of simple radiography has recently drawn attention to an interesting class of inlaid metalwork from the earlier Anglo-Saxon period,[2]

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1. Although Coghlan includes single items in his general work: Coghlan, H.D. (1956). Notes on Prehistoric and early Iron in the Old World.
2. Evison V.I. (1955) Early Anglo-Saxon inlaid metalwork; Ants. J. XXXV pp.20-45; (1958) Further Anglo-Saxon inlay; Ants. J. XXXVIII pp.240-4.

including that in a small number of spear-heads.

More recent work on the theoretical problems of pattern-welding by Anstee and Biek[1] contains a number of interesting hypothetical experimental reconstructions, but the only original work really adequately examined, the Palace of Westminster sword, is relegated to a valuable appendix contributed by N. P. Allen,[2] setting an admirable standard for all subsequent work of this kind. The table[3] lists references to some five spear-heads from the collections of Reading Museum, all of which are said to be pattern-welded, but apprently without even radiographic examination, no further details are given. On the other hand, at a time when X-ray photographs are becoming a more frequent occurrence in the journals, a useful caveat is issued as to overconfidence in the reliability of radiography per se.[4]

The field of more abstract connotational values of concrete remains, has hitherto remained, with the early exception of Hodgetts[5] vagaries, the preserve of German scholarship, among which the essays of Hofmeister[6] and Holtzmann,[7] surveying the more notable "holy lance" relics

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1. Anstee J. W. and Biek L. (1961). A study in pattern-welding; Med. Arch. V pp.71-93.
2. Ibid. pp.88-92. 3. Ibid. opposite p.88.
4. Ibid. p.89.
5. Hodgetts J. F. (1884) cap. III passim.
6. Hofmeister A. (1908), Die heilige Lanze, ein Abzeichen des alten Reiches.
7. Holtzmann W. (1947), König Heinrich I, und die Heilige Lanze. Schramm P. E. (1954-6) Herrschaftszeichen und Staatssymbolik, especially, II, pp.492-537.

of Germanic tradition, prove the most useful, prior to Schramm's more extensive study of symbols of rank and state.

Outline of Work undertaken: This study is intended to be broadly based. Discussion of the archaeological evidence is based on classified lists,[1] comprising all published references which might sensibly be included,[2] to the end of 1964, and all material made available for study from public collections during 1962-3. Altogether some three and a half thousand references are made, but classification of groups followed the collation of measured drawings taken from specimens actually examined,[3] rather than from the frequently unreliable published illustrations or verbal descriptions. Of the extant examples, very many are in various stages of completeness or decay, so that the actual number used in classification was very much diminished; but a major principle adopted has been that of completeness, to which in direct proportion typlogical validity must be related. The system of classification adopted remains, as with Petersen and Fett, essentially formal, the main criteria being those

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1. Appendix II
2. i.e., where some distinctive feature of the find, other than its mere occurence, is recorded.
3. It has proved both unnecessary and impracticable to submit the collection of original drawings as part of this thesis; but it is intended to have them made available in some more permanent form for the use of future students.

of profile and proportion, together with some consideration of overall lengths and the less obvious characteristics of weight and cross section. An attempt has been made to avoid the errors of both Petersen and Fettin their typological division, by abandoning the establishment of over rigid "types" or "kinds", and substituting a more elastic sequence formula of series and groups, which in definition prove mutually exhaustive, while at the same time acknowledging a sophisticated formal inter-relationship. A rigid typology per se necessarily seems to deny any possibility of interaction or development of the species, and the concept of "kinds" within a vacuum which this implies, proves neat but both insignificant and unrealistic. The existence of overlapping groups, while inevitable, can be invaluable in the estimation of relative chronologies. Similarly the arbitrary choice of specimens as type objects, while useful in the past, is based on just this false a priori assumption that there are "types" rather than just "groups" of objects sharing common characteristics. Here each group is illustrated by a number of representative examples.

Particular difficulties were posed by the poor condition of much of the material seen. Corrosion of iron is considerably accelerated as the object is unearthed, and only

relatively recently has immediate remedial action been generally feasible. Bad treatment or lack of treatment in earlier times has significantly reduced the value of much Dark Age iron-work in public collections, both as an item of display, and more so as an object of study. Mere corrosion however is of less significance than decay and fracture caused by careless handling in this state. The slightest of superficial features will often survive corrosion,[1] but in many cases where the blade profiles have been damaged, a certain subjective element is introduced into the allocation of some of the pieces to any particular class. It is due to this uncertainty, rather to any actual formal overlap that certain examples are listed for instance as: B1/3. Such pieces, which might otherwise in some cases have been valuabley dated by association, cannot be uncritically employed to indicate chronology. At the same time, the spear, like the axe, takes a necessarily utilitarian form, and made of iron, is less subject to change than, for instance, ornamental cast bronze. As destructive to study as physical decay, especially where the objects themselves

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1. The internal structuring of the fullered blade from Battersea (bm 58 5-14 1.) for instance, is shown by sectioning to have survived corrosion in all its details.) (see pp. 370-1.)

are now missing, are vague or inaccurate descriptions,[1] poor figures, or worse photographs.[2]

Closely dateable associations are rare in male graves, and there is little opportunity to utilise the regular sets or weapon groups, that are found in Scandinavia. Approximate indications as to date might often be adopted, critically, where attested chronological limits of any particular cemetery or group of graves is known. Subsequent to the pagan period, not even this indirect support is available, and greater reliance has to be placed on the relative indication of form, and in some cases individual ornamentation. Cases of late dated association, like those from Westly Waterless, dateable to within fifty years, are rare, but there is the additional aid of depicted forms in the representations of sculpture, manuscript illumination, or the Bayeux Tapestry. Conclusions deduced from such sources as these, are naturally subject to objections, but with regard especially

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1. The two spears from Camerton, Somerset (a priori important because of their presumably late date) are described by Horne as having "tangs" rather than sockets, but this is no longer possible to determine, as the objects themselves are missing.
2. Two extreme cases from Ireland include examples, both duly recorded in Bonser's Anglo-Saxon and Celtic Bibliography, the first of which proves to be a Bronze Age flint dagger, and the second, an exotic Polynesian sword: (Day J. (1895)) "A Viking spear-head from Scarrif"; JRS AI, XXV(5th S.), p.176; and Lenihan M. (1876) "Weapon of war, probably Danish ... recently found in Scattery island, Co. Clare"; J. Roy. Hist. and Arch. Ass. Ireland, XIII,(p.182)

to the limiting dates of various types, prove interesting. Professor Whitelock has discussed the difficulties in the assessment of traditional/literary formulae to illumine social conditions,[1] and the objections, in general, may be applied equally well to material remains. An additional chronological aid lies in an examination of weapon types immediately prior to, and subsequent to the Anglo-Saxon period proper, helping to place the various groups in due perspective, and to establish their relative position one to another. Further difficulties are immediately encountered in this by the significant lack of material available for study from the appropriate regions dateable to the critical period of the Migrations,[2] and in the later Middle Ages, by the general absence of any archaeologically attested material whatever.[3]

Completeness too, was essential, in principle, to the study of the structure of the weapon, and an assessment of the art of the Dark Age smith. Already limited severely by the conditions of preservation of so much of

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1. Whitelock D. (1949) Anglo-Saxon poetry and the Historian; Tr. R. Hist. S. XXXI 4th S. pp.75-94.
2. See pp. 74-5.
3. Large gaps seem to occur for instance in comparative Danish material of the Viking Age. Only in the tent century do weapon graves become at all common, and most of the iron-work from these is badly corroded, (Brønsted J. (1936) Danish Inhumation graves of the Viking Age; Acta Arch. VII, p.227), and see p.320.

the archaeological material, only the widest survey would necessarily embrace those critical pieces which shed any sort of light on this obscure subject. Not only is it essential, in establishing the nature of a situation accurately, to analyse the masterpieces of the weapon-smith's forge, but to pay equal attention to humbler and much more regular products. This has meant the examination and classification of often the merest scraps, but in several cases such unconsidered trifles have helped to show the Anglo-Saxon smith at his most sophisticated; and not only for the reason that zealous museum curators are more prepared to have fragments in their care, rather than complete specimens, subject to any kind of analysis. The metallographic examination of transverse sections of choice specimens, would undoubtedly prove of the utmost value, especially if critically selected according to date or type; and as Salin and France-Lanord have repeatedly insisted, this need not involve any consequent loss of exhibition value, and the recent availability of spectrum analysis has even made possible the non-destructive chemical examination of samples taken. Certain surveys have been adequately completed, such as the radiographic examination of the later pattern-welded spear-heads, and a fair number of those with simpler composite blades, but on the other hand no more than a quarter of the pagan period material has been subject to

X-ray, due more to limitations of finance and time, than to the apprehension of museum authorities. Certain photo-micrographical and Vickers' hardness tests have been possible, but with similar limitations. Technical researches in general, have been made as wide as practically possible at the present time, but no part of this can claim to be exhaustive, and what is presented is more in the nature of experimental and illustrative probes, each of which might be usefully followed up, when further resources become available.

The method adopted for the examination of linguistic evidences is based more or less on that of Keller, whose work proved the starting point for some of the comments included here, although her etymological references, for instance, have been considerably modified or entirely replaced. At the same time, the greater part of the textual canon has appeared in new critical editions, and the results of important general researches, like those of Pope or Bliss into Old English metre,[1] or the lexicographical studies of Kurath and Kuhn,[2] have had to be taken into account. As the result of more detailed consideration, it has been possible to forward wider

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1. Pope J. C. (1942) The Rhythm of Beowulf; Bliss A. J. (1958) The Metre of Beowulf.
2. Kurath H. and Kuhn S. M. (1952) (in progress). Middle English Dictionary

wider general conclusions from an examination of linguistic reference, and the available evidence has been arranged for future consultation, like the archaeological material, in appropriately classified form. Comparative evidence has been sought both in classical literature, as well as cognate Western Germanic texts, but of course, due care has had to be taken in the utilisation of, for instance, Old Norse or Icelandic saga material, the greater part of which is found in written form only in the twelfth century or later, although in many cases clearly preserving much earlier oral tradition or detailed verbal formulae.

Speculations as to the abstract significance of the spear as a symbol within the Germanic ethos of Anglo-Saxon England have been made tentatively in the light of all representational, and all literary indications, both in Old English and cognate languages, and in accordance with such ethnological principles as seem to prove of effect. This section, like that on usage, has been included in the belief that all aspects of the subject are mutually enlightening, and to make the study therefore suitably comprehensive.

Within the archaeological field, progress in Anglo-Saxon studies might be made at present, either by: the critical examination of particular cemeteries or domestic

sites, or alternatively, by the survey of particular classes of objects, as here. It is the former that will ultimately give us greatest insight to the nature of the Anglo-Saxons as people, but currently both approaches remain mutually dependent. It would naturally be advantageous to such a study as this to have a wide series of archaeologically defined contexts upon which to base assumptions as to, for instance, chronological or cultural division, but in turn, the critical exposition of any particular site, or group of sites, must rely almost entirely on separate studies of individual objects. All that might be proffered therefore is the picture of one particular field as it appears at the present time, realising that some of the evidence for such subjective considerations as dating may well have to be revised as a result of future scholarship. Less subject to change, is the physical nature of the archaeological evidence, on which some emphasis has therefore been laid, in order to form an introduction, from a particular point of view, to the neglected study of Dark Age iron-work as a whole.

The object of the study, is: to reduce a mass of amorphous archaeological material to some sort of meaningful order; to indicate the value of detailed analysis of one or two selected pieces; and to examine the place

of the spear in the ethos of Anglo-Saxon society as it is illustrated by Old English literature.

II. PERSPECTIVE

It is necessary to consider briefly the forms of the spear during the periods prior to the Migrations of the fourth and fifth centuries in order both to place the singular insular developments of Anglo-Saxon times into their correct perspective, and to trace the genesis of certain inherited elements. And similarly, at the end of the Anglo-Saxon period proper, it is useful to discover whether any clear line of development might be traced into later Medieval times, or whether, perhaps due to modified military tactics, the introduction of plate armour, for instance, any line of demarcation might be said to terminate the Anglo-Saxon tradition.[1]

Hallstatt Times With widespread ore deposits, iron is both more conveniently obtained and easier to work than bronze, while forged laminations prove tougher and more durable than the internal structures of the cast alloy. Consequently, once introduced into Europe from Asia Minor and the Eastern Mediterranean, iron rapidly superceded the current metal as the material index of the economic mode of life, providing tools for the farmer and artisan, and weapons for their defence. North of the Alps and throughout Central Europe during the seventh and

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1. The later Medieval development of spear forms is dealt with below, pp. 320-33.

sixth centuries B.C., it is apparently the knowledge of economic iron production which seems to define the cultural status of a number of otherwise very mixed communities, but sharing sufficient traits to be conveniently grouped under a single culture name, called after the rich type-site cemetery at Hallstatt in Upper Austria.[1] This culture spread rapidly north and west through Europe, and is recognisable in southern Britain for instance, from the end of the fifth century.[2]

During the course of this Iron Age A the new blacksmith was able to provide the farmer with sickles, billhooks and even ploughshares,[3] but for some time bronze would still successfully compete with iron in the production of many of these tools, and of course the attractive bright alloy was to remain current for ornaments of all kinds, until modern times, including the decorative inlay of the new less appealing, but cheaper metal. But conditions applying to the use of weapons are rather

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1. Sacken E.F. (1886) Das Grabfeld von Hallstatt.
2. ie. Hawkes's Iron Age A, (1931) Hillforts; Antiquity, V pp.67-74, best represented in this country by: Bushe-Fox J.P (1915) Excavations at Hengistbury Head; Bersu G. (1940) Little Woodbury; Proc. Prehist. Soc. 1940, p.1 ff; Cunnington M.E. (1923) The Early Iron Age inhabited site at All Cannings Cross.
3. Childe V.G. (1940) Prehistoric Communities of the British Isles, p.200, n.50.

different, where it proves expedient always to be provided with the best available, and this now meant recourse to the sharper cutting edges and tougher internal structures of iron. New techniques of ironworking seem to have introduced, however, no immediate revolution in the patterns of weapon usage. This is due to the fact that, perhaps because the later bronze worker and the earlier blacksmith were often one and the same man, there is considerable continuity in the form of the weapons of the merging traditions.

Despite the wide variety of increasingly subtle forms illustrated by Greenwell and Brewis,[1] the Bronze Age spear, like the sword in its origins,[2] seems to have been designed entirely as a thrusting wepon, with all the emphasis placed on the sharp point and a stout midrib to back it up, with the cutting edges of the blade serving merely to enlarge the wound made by the passage of the point. And despite the elasticity of iron, making increased length, and stouter

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1. Greenwell W. and Brewis W. P. (1909). The origin, evolution and classification of the bronze spearhead in Gt. Britain and Ireland; Arch. LXI. pp.439-72.
2. Original Bronze Age swords seem to have been made with a slender pointed blade, with a strong median rib, and relatively weak junction at the hilt, - and no signs of ground edges to the blade; and the evolutionary modes of usage seem to be thus: thrust, cut and thrust, and finally cutting or slashing only.

cutting edges possible, this seems to have been the prime mode of usage at least until the time of the Migrations; and as we shall see, there is no formal evidence for the general practical employment of the cutting edges before about the seventh century. And despite the totally disparate techniques of forger and caster, this continuity of pattern extends to almost every product; and iron sickle from the Llyn Fawr hoard, for instance, copies the native bronze type exactly,[1] and elsewhere axes forged in iron, but in imitation of cast bronze models, even include the obsolete loop.[2] Conversely, sixth century B.C. invaders of Britain carried swords made in bronze, but modelled on superior continental iron types.[3]

And similarly, as Déchelette noticed in Bavaria, iron spearheads from the earliest Hallstatt sites, seem to have been manufactured in imitation of their bronze antecedents, many of them skilfully so, welded along the whole length of their sockets.[4] In parts of Scandinavia, however, and notably at Tidavad in Västergotland,

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1. Fox C. (1939) A second cauldron... Llyn Fawr Hoard; Ants. J. XIX, p.383, fig.2.
2. Rainbow H.N. (1930) Socketed and looped iron axes from the British Isles; Arch. J. LXXXV, p.170-5
3. Eg. from the River Tyne near Newcastle. British Museum Regs. WG.2271.
4. "En Bavarière, les lances les plus anciennes ressemblent au modele classique de l'age du bronze." Déchelette J. (1927). Manuel d'archéologie prehistorique, Celtique et Gallo-Romaine. vol.III p.233.

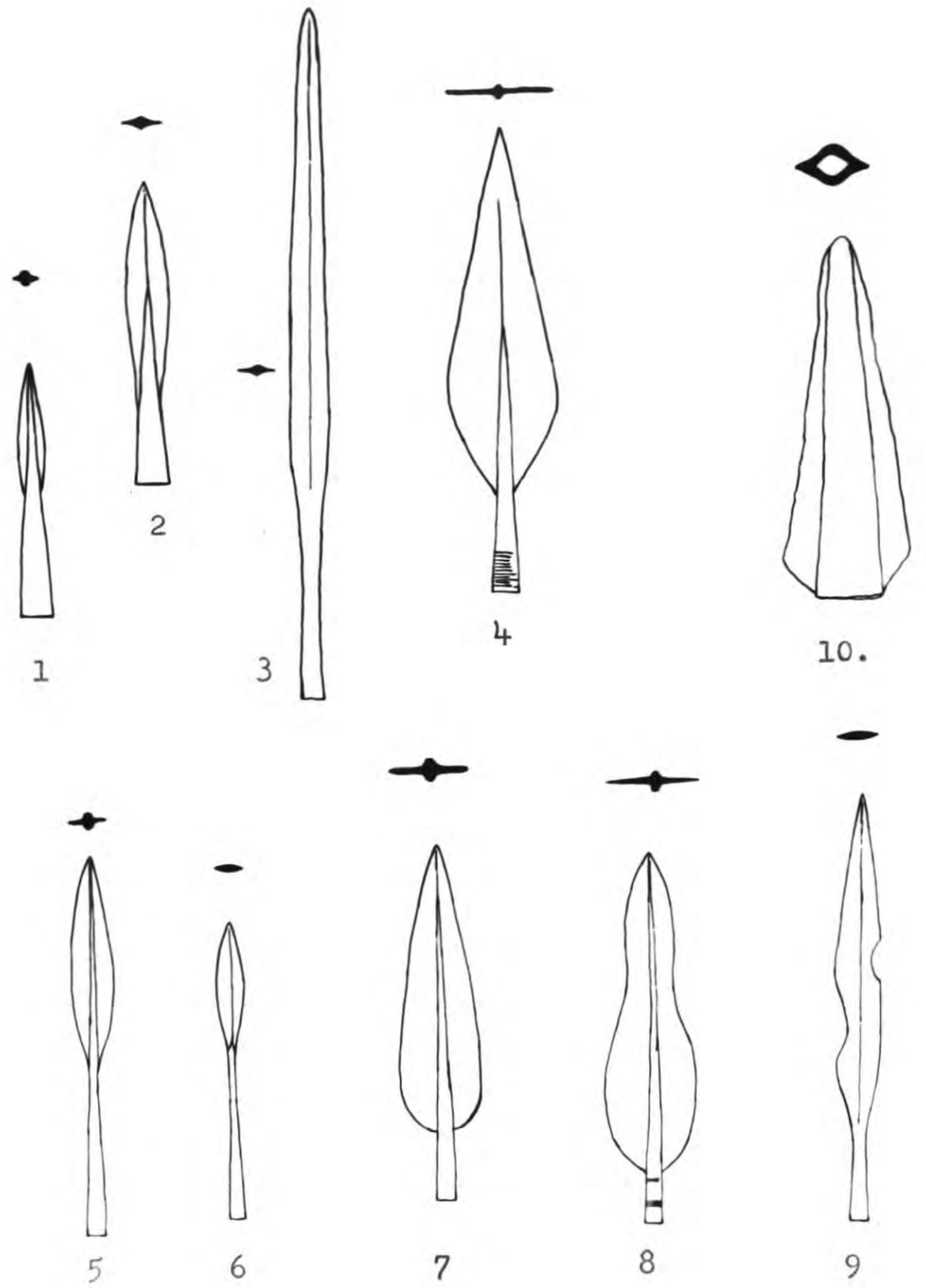

Fig. 1. Spear Profiles from:
(1-4) Hallstatt,
(5-9) La Tène, and
(10) Tidavads.

It is similar in internal structure to those of Central Europe, with hollow quadrangular sockets carried right into the tip of the blade, but with, for the greater part, an angular profile.[1] Most of these are short and stout, without a projecting socket, but with blade pieces extending right down the sides, in anticipation of the later and lighter more elegant Hjortspring types.[2] Such products can by no means be attributed to less adventurous or skilfull smiths, and no doubt merely characterises the conservative taste of an initial market, and although almost immediately a range of characteristically Iron Age spear patterns emerge, Bronze Age influence is still clearly recognisable at the height of the first and last phases of prehistoric Iron Age culture.

The best point of reference for the spear forms of this first phase is perhaps the type site of Hallstatt itself.[3] The dominant type is a simple short and narrow foliiform blade, with the socket often of equal length extending into a well defined midrib, usually round in section, extending down the whole, or greater part of the blade; (fig.1 (1-2).

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1. Salo U. (1962) Fruheisenzeitliche lanzenspitze der Skandinavischen Halbinsel; Acta Arch. XXXIII pp.63-78.
2. Similar material comes from Trailfingen (Württemberg). Stuttgart Mus. regs. 182. Unassociated find. See also below, p. 45.
3. Sacken E.F. (1886) pp.35-7, taf.vii.

These are supplemented by lesser groups of both long slender foliiform blades with fairly short sockets and pronounced midribs (fig. 1 (3); and examples of more moderate length with a wide foliiform blade, the greatest width of which is nearer the junction to the socket, (fig.1 (4). Later in the period it is these supplementary types which predominate throughout Europe; the long slender leaf shapes either with a well defined midrib as at Cannstatt, or without as at Harthausen;[1] and the broader leaf-shape with the widest part of the blade near the junction of a moderately short socket, again either with a high midrib extending down the greater part of the blade, as at Würtingen, or without at Mergelstetten.[2] At the same time the smaller simpler leaf shapes, characteristic of the earlier period, continue to survive, though forming an increasingly less significant proportion of the finds; and here too the stout midrib is by no means considered universally necessary, as in the example from the Llyn Fawr hoard.[3] During the later stages of the Hallstatt period too, although the characteristic profile remains the foliiform derivative from Bronze Age antecedents, occasional angular examples, similar to the Scandinavian

1. Rieth A. (1942) Die Eisentechnik der Hallstattzeit pp. 59-62, Abb. 43 (1,3).
2. Ibid. Abb. 43 (7,9).
3. Fox C. (1939) fig.1 (12).

Tidavads group, and possibly deriving from them, are to be noticed in Continental Europe; like the short lozengiform blade with a short stout socket extending into a firm midrib, from Grafrath, or a longer more slender example, perhaps influenced by the slender foliiform blades, where the angle formed is close to the junction with the socket, as in that from Rappel.[1] These pieces are essentially atypical, however, and must probably be interpreted as northern elements, although for the most part Scandinavian weapons throughout prehistoric times seem based on southern Celtic designs in general.

Better preserved examples show that throughout this period decoration was added to at least some of the pieces, although confined largely to the sockets, much in the manner of the bronze-worker's chasing; scribed lines encircling the mouth of the socket at Hallstatt (fig.1(4), or very occasionally a more elaborate piece of bronze inlay in the same position, as at Bülach.[2] No useful overall spear lengths are recorded at this time, although the odd ferrule is found - most interestingly the tanged ball-terminal from Oberleinach.[3]

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1. Rieth A. (1942). Loc. cit.
2. Ibid. p.74, abb.68 (7).
3. Müller-Karpe H. (1953) Das späthallstattzeitliche Wagengrab von Oberleinach, Ldkr. Würzburg; Germania XXXI p.56-9 abb.1 (20-2).

La Tène-Marnian times At the same time as the first pressures of the Hallstatt people were beginning to be felt around the peripheral fringes of the culture area in Britain and Scandinavia a new and powerful successive culture was rapidly asserting itself at the centre of Europe. Heavily influenced by East Mediterranean urban civilisations, and the sudden access to wealth which trade in this direction brought, the prompt and violent expension of this new people was almost inevitable, led by aristocratic warriors riding light two-wheeled war-chariots of the Etruscan pattern. During the third and fourth centuries B.C. they had spread into the Danube, invaded Italy, and by the end of the third century, had reached Scandinavia and established themselves in Britain as Hawkes's Iron Age B.[1]

This culture group, named initially after a rather late emporium at La Tène on Lake Neuchâtel, introduced a number of more or less subtle variations into the limited typological series of spear-heads established in Hallstatt

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1. Hawkes C.F.C. (1931) pp.76-88. Glastonbury and Meare Lake villages together with the Arras chariot burials form perhaps the best known type-sites: (Bulleid A. and Gray H.S. (1911-7) The Glastonbury Lake Village; Gray H.S. and Bulleid A. (1953) The Meare Lake Village; Elgee F. (1930) Early Man in North-east Yorkshire, p.186.

times, and again it is useful to cite the type-site itself as a major point of reference, dateable to the second century B.C.[1] Here, as before, the norm is that of a simple foliiform profile, although now with a large range of more or less elaborate variants, some of which where the socket apparently continues into a hollow midrib in the centre of the blade, clearly derive, in structure, from the earliest Hallstatt types.[2] Vouga considers any typological division made impssible by the plethora of forms found at La Tène,[3] but a number of clear groups are to be defined, each of which may be distinctly distinguished en bloc from surviving Hallstatt types. There are a large number of slender foliiform blades both with and without definite midribs, where the widest part of the blade is more or less equidistant between junction and tip, and all of them on equally long or longer sockets, (fig.1 (5-6)); and broader foliiform blades with the widest part nearer the junction with a short socket, (fig.1 (7)), a type which often becomes almost too exaggeratedly wide for practical use.[4] Into this later type is introduced the additional feature of a

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1. Vouga P. (1923) La Tène, cols. 49-56, pl.ix-xiv.
2. Vouga P. (1923) pl. ix (1); xiii (3), col. 51; and cf. de Reffye V. (1864) Les Armes d'Alise, Revue Archeologique. 1864. p.13.
3. Vouga P. Ibid. col.49.
4. Ibid. pl. xiii (1)

strickening or concave curve in profile, (fig.1 (8)), which develops at La Tène into a small number of very elaborate examples with variously modified blades: a lunate piercing, clipped edge (fig.1 (9), or wavy profile,[1] the subtle designs of a people rich and leisured enough to contrive what Vouga describes as "un raffinement de cruauté". Angular profiles are altogether absent, and the single barbed example is lightly dismissed by the author as in all probability the efforts of a poor workman to symmetrise his mistake,[2] although it is entirely reminiscent of a Bronze Age form recognised by Greenwell and Brewis.[3] The more elaborate items are probably to be explained as the late and decadent invention of richer central regions which never reached the further parts of this vast culture area, although some richly ornamented examples certainly did, like the magnificently bronze inlaid piece from the Thames at London.[4]

A number of spear-shafts were preserved by the damp littoral conditions at La Tène, and five excavated intact with both head and ferrule; these were singularly large, from 2. 43m. to 2. 47m. in length, but with the diameter

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1. Ibid. pl. xi-xiii.
2. Vouga P. (1923), col. 53, pl. xiii (12)
3. Greenwell W. and Brewis W.P. (1909) Class VI p.454, fig.54-57.
4. Brailsford J.W. (1953) Later Prehistoric Antiquities of the British Isles. p.21, fig.21 (6).

throughout just that of the socket dowel, just some 2cms. across. Vouga considers them to have been equestrian lances on the grounds that shafts of such a length could scarcely have been thrown; but there really is no reason why they should not have been retained in the hand, although cavalry usage is equally likely in view of what we know of Celtic military tactics. The wood is of stripped fraxinus and so regularly worked, reports the excavator, that at the moment of discovery it seemed polished.[1] The author notes specifically that there was discovered no trace of amentum or leather strap, but elsewhere records the recovery of two sections of wooden shaft equipped with a number of bronze nails, not quite flush with the surface, which may well have been used to hold such an amentum in position.[2] Few of the spear shafts found seem to have been furnished with ferrules, but of those found, the majority appear to have been of the older Hallstatt pegged or spiked form, with pyramidal, polygonal section, or rounded button-like terminals; or more rarely a simple piece of folded conical metal is held in place by a single nail or rivet.[3]

Within the Germanic area proper, disregarding such

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1. Vouga P. (1923) col. 49 and 54., pl.ix(14-15). Of course parts of the shaft could have been polished merely by use, but later evidence suggests that where early spear shafts were not painted or stained in some way, they were regularly polished, (see p. 456.)
2. Vouga P. (1923) col.55.
3. Ibid. col.56 pl.xiv (15-22).

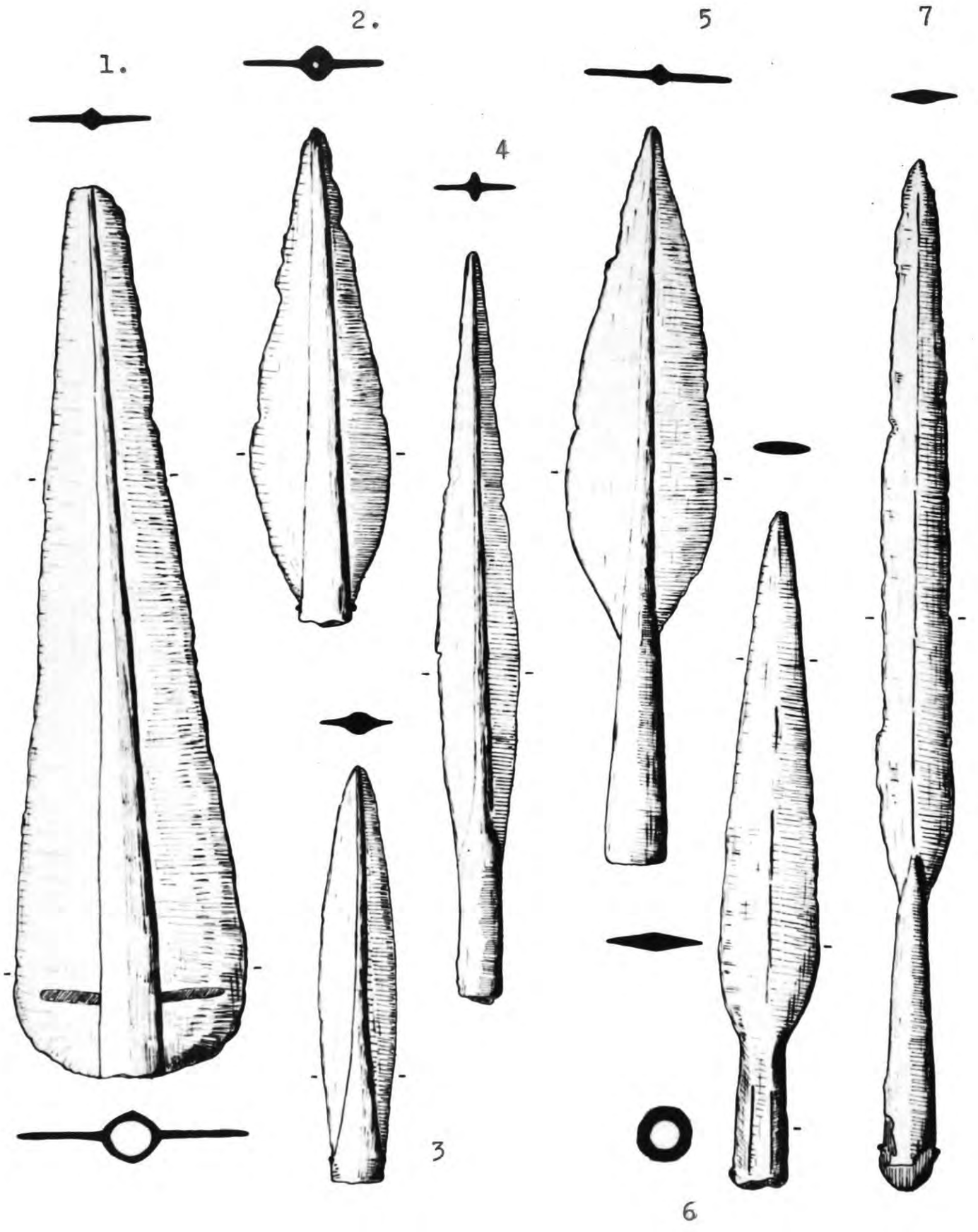

Fig.2. Spears from Hjortspring. Copenhagen Mus.
(1) Regs. A355. (2) A389. (3) A386.
(4) A374. (5) A351. (6) A352. (7) A350.

ethnic fluctuation as that imposed by the Cimbro-Teutonic invasion of Gaul during the second century B.C., the pattern of spear forms throughout this period is much simpler than that presented at La Tène. At Hjortspring in Als, for instance, a Danish bog deposit which may probably be ascribed to a single time about 200 B.C.,[1] a modified Hallstatt series survives. Roughly grouped, four types are to be discerned; all of them basically foliiform: the greater number broad with the widest part nearer the base, either with sockets so short as to just provide room for a transverse rivet, or with none at all but stout graduated midribs hollow at the base to receive the shaft, (fig.2 (1-2); These normally measure up to 16 cms. in length, but the larger example illustrated, almost twice this length, is singular too in displaying simple bands of copper inlay in the lower part of the blade;[2] an equally common type is more slender with a high sharp midrib extending the whole length of a blade with the widest part in the middle, and a short socket extending for various small distances below the blade; (fig.2 (3-4);. These measure from 13 to 29cms. Much less frequently found is the supplementary Hallstatt type, long and thin with a relatively long socket usually sharply delimited from a blade without clear midrib but

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1. Rosenberg G. (1937) Hjortspringfundet; Nordisk Forntidsminder III pp.43-7.
2. A parallel to the largest of the Hjortspring examples, occurs from grave 24 at Hundersingen, (Württemberg)(Stuttgart Mus. unregistered material).

simply lozengiform in section; (fig.2(7). The dominant type at Hjortspring, however, is moderately wide, with the broadest part of the blade towards the bottom, either with or without a prominent midrib through the length of the blade, and a shortish socket occasionally facetted. This type accounts for some half of the examples discovered; (fig.2 (5-6). In addition, there were recovered a number of dart-heads of sharpened antler or bone, which, perhaps designed especially for hunting, form a characteristic feature of domestic sites of the period.[1]

Most of the sockets of the iron spear-heads retained fragments of wooden shaft held in place by a single transverse iron, or more commonly bronze, rivet; some wooden fragments measure up to a metre in length, although none are complete. The diameter of the shaft up to this point is regular, particular examples measuring from 1.5 to 2.2 cms., and then a carved collar, the inside socket-dowel some 2 to 4mm. less in diameter. The shafts were reportedly of heartwood Ash (fraxinus) for the most part, but bough pieces of Rowan (sorbus) and Birch (betula), were also noticed.[2]

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1. Eg. at All Cannings Cross; (Cunnington M.E. (1923) loc.cit.) Simple split bone darts, perhaps used for fishing, are recorded from, for instance, Sjonghelleren, (Møre) as late as c.400 A.D., (Oslo Museum, c.21834).
2. Rosenberg G. (1937) pp.47.

Very much the same sort of pattern is repeated throughout the Germanic north during the pre-Roman La Tène centuries; at, for instance, Grotromstedt or Münsingen in Germany,[1] and in Baltic Scandinavia in Östergotland, on Gotland or Öland.[2] In Scandinavia once more, although not at Hjortpsring, is found the occasional spear-head with angular profile, ultimately derivable from the northern Hallstatt types, and showing thus the same element of conservative continuity throughout the pre-Roman Germanic Iron Age.[3] During this pre-Roman La Tène period too, the first examples of etched or hatched blade decoration so familiar during the later Roman Iron Age, are imported into eastern Scandinavia, apparently from Silesia.[4]

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1. Eichhorn G. (1927) Der Urnenfriedhof bei Grotromstedt. pp.84-94; Paret O. (1937) Mittellatenegrav von Auingen, Germania XXI pp.20-2.
2. Oxenstierna E.G. (1958). Die ältere Eisenzeit in Östergotland. pp.51-2, fig.75-9. Nylén E. (1955) Die Jüngere Vorrömische eisenzeit Gotlands. p.157 figs.185, 205-6; Eckholm G. (1935). Forntid och fornforskning i Skandinavien. p.180
3. Almgren O. (1914) Die Ältere eisenzeit Gotlands I. p.10 fig.13.
4. Almgren O. (1914) p.10 fig.94; NylénE. (1955) p.80, fig.185; Oxenstierna E.G. (1958) p.61 fig.80. Jahn M. (1916). Die Bewaffnung der Germanen in der altereneisenzeit. pp.66-8, abb.73-6.

Roman Imperial Expansion, during the first two centuries A.D., and subsequent policy of commercial Romanisation of barbarian tribes to the north and east, without doubt exercised considerable external influence on Germanic military tactics, and consequently upon the weapon forms currently in use. The second century invasion of Gaul and northern Italy by large numbers of Teutones and Cimbri (113-101 B.C.), brought Germanic and Roman arms into direct conflict for the first time, and thereafter a greater or lesser degree of mutual contact between the dominant military organisation of Mediterranean Europe and the "barbaric conquerors of the Gauls, more terrible in their warfare than the Gauls themselves," was considered politic. The course of Caesar's Gallic wars necessitated a continuing confrontation of Germanic tribes to the east, with specific campaigns against invading Suevi and even probing beyond the Rhine. Subsequent operations by Drusus and Tiberius moved to push out the imperial frontiers to the Elbe, but after the annihilation of three legions under Quintilius Varus in the Teutoburgerwald (9 A.D.), the limes were permanently established on the Rhine, with only punitive ventures, like those of Germanicus (14-16 A.D.) beyond.

But the acquaintance of Germanic warriors with the arms of the Roman legionary was by no means limited to hostile confrontation in battle. Certainly from the

second century, and increasingly throughout the third and fourth centuries,[1] Germanic personnel were introduced into the Roman military organisation in the form of auxiliary infantry and cavalry units, immediately becoming very highly Romanised indeed, adopting the camp latin with which they erected Mediterranean style altars, albeit often to Germanic deities, and on their dismissal from the service were granted Roman citizenship by military diploma. No doubt many of these retired soldiers would have settled on lands within the limes, but the majority seem to have returned to enjoy their wealth in free Germany, and the long standing influence of the south and west on Germanic weapon forms which we have traced already through Hallstatt and La Tène times, can only have been intensified at this time. A brief examination of Roman types therefore, seems expedient at this point.

With the study of Roman arms we have for the first time the immense, if difficult, aid of literary reference, supported by such representational evidence as is to be found, for instance, on the sculptured monuments to martial death and triumph, of which an admirable summary account

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1. We find evidence for a cohors Nervis Germanorum millaria garrisoning the fort at Birrens, Dumfriesshire some time before 158 A.D., and this same unit, together with cuneus Frisorum, and other Germanic groups like the numerus Hnaudifridi, is found later during the third century stationed at other points along the Wall, like Housesteads, Bewcastle, or Burgh-bySands. (Birley E. (1961), Research on Hadrian's Wall, pp.179, 208, 228, 231).

has been compiled by Couissin.[1] On the other hand archaeological evidence is neither so frequently forthcoming,[2] nor when available, presents such a precise picture as might have been expected. The Roman soldier's attitude to his arms is merely symptomatic of an entirely different military ethos from that of the Germanic barbarian. To the legionary, gladius and pilum were merely the tools of his trade, naturally kept in a good state of repair by himself, but by no means his own personal property, and paid for if lost or returned to the quartermaster when finished with. Certainly there is none of the barbarian's intense weapon-property personalisation, demanding burial with its owner at death. Consequently there is no possibility of dating particular examples, as we might in Germanic contexts by associated funerary objects, nor have the occasional emporium deposits been closely dateable by means of archaeological strata sequences. And as during Hallstatt and La Tène periods before, and the period of the Germanic kingdoms after, despite the frequently precise definitions of military commentators, actual material remains display a large degree of formal variation. No two spear-heads

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1. Couissin P. (1928) Les Armes Romaines.
2. Breuer J. (1931) Bulletin des Musées royaux d'Art et d'Histoire, Sept. 1931, p.148, notes the remarkable rarity of discoveries of Roman period arms in, for instance, Belgium.

are exactly alike, although they fall into rough groups. Military definition, therefore, would seem to have been one of function, determining form from usage, rather than a direct definition of both form and usage. Failure to recognise this may account for what is often dismissed as the incompatibility of literary and archaeological evidence in Roman times.

The reforms of Gaius Marius, who had successfully repulsed the Teutones at Aquæ Sextiæ (102 B.C.) and the Cimbri at Vercellæ in the following year, formed for the first time a standing legionary army of professional enlistments, needing to be provided thus with a regularised and unified armament. Changes at the same time in the formation of the legion, and the tactical arrangement of cohorts, all led to further specialisation of the soldier's equipment.[1] Despite the caveat of Couissin with regard to the evidence of the stelae,[2] the general concensus of

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1. Mommsen T. (1862/75) The History of Rome. III pp.241-7.
2. Couissin P. (1928) para.147. Couissin's objection is largely on account of the continuing practise of portraying the legionary, for instance on the Arc d'Orange or the stele of P. Flavoleius mil. Leg.XIV, with a spear, despite the apparent change of armament. But this fails to account either for naturally conservative funerary convention, or for the considerable Hellenic influence on monumental sculpture at this time, which he acknowledges elsewhere (para.188). At the same time Vegetius, upon whom Couissin places some linguistic reliance, seems often to use the word hasta indiscriminately, to denote all kinds of javelins as well as the equivalent of contus. It is interesting to note that the only instances where stelae do portray pila, is to accompany those of Praetorian status; the unconventional introduction here no doubt intended to convey distinction of rank.

opinion[1] seems to be that it was the Marian reforms which resulted in the general abandonment of the hasta, which with the spatha remains thereafter characteristic of the auxiliaries and enemy barbarian tribes, while the legionaries adopted the pilum and small dart hastilia for use in conjunction with the gladius. Certainly by the first century A.D., Tacitus regards this as the normal usage.[2]

It is instructive to trace the development of the legionary pilum through the period during which we might expect Germanic tribes to have come into contact with, and therefore possibly to have been influenced by, its form and usage. At the time of the Cimbro-Teutonic invasion of Gaul, in the later second century B.C., the form was apparently still that described by Polybius in use during the Carthaginian wars.[3] Both light and heavy versions were carried by the legionary; its primary use being that of a missile, but it was also of general value - in combatting cavalry, for instance. A barbed head, square in section at the tip, on a shank some one and a half metres in length was fastened to a wooden shaft of equal size by means of a number of rivets. During the

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1. Marquardt J. (1887), De l'Organisation Militaire chez les Romains. p.150; and cf.: Daremberg C. and Saglio E. (1873-1919), Dictionnaire des Antiquités grècques et romaines; sub. hasta
2. Annals, XII, 35
3. Historiae, VI, 22.

Cimbric war Marius reduced the number of rivets to two, replacing one of these with a wooden peg which might snap on impact, trailing on the ground to the inconvenience of the person whose body or shield it struck, and rendering it useless to pluck out and return.[1] This invention apparently made the pilum too fragile for general usage, however, and the same tactical advantage is soon secured by a means without this incidental disadvatage. During the Gallic War the iron head is firmly fixed to the wooden shaft, but while the tip is made of steel, the slender shank is made of softer wrought iron so that it bends on impact, with the same results.[2] This establishes the classical usage of the pilum which was to continue for some two centuries after the conquest of Gaul. Dionysius of Halicarnassus, writing in the time of Augustus, describes the pilum:

> "with shafts large enough to fill the hand and pointed iron heads no less than a metre in length, in the form of a brooch, and with the iron they are as long as spears of moderate length,"[3]

that is, rather, shorter than that described by Polybius. The

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1. Plutarch Vitae Parallelae; Marius 25. For this device nascent languets must have been introduced, extending in thin strips down either side of the shaft junction. Perhaps these may be considered to represent the origins of the lamillae which Agathias recognised as characteristic of the angon. (See p. 592.)
2. Appius, Celtica I; and cf. Caesar, De Bello Gallico I, xxv 2.
3. Dionysius, The Roman Antiquities, V, 46, translated by Cary E. (1937).

use of the term "brooch" with regard to the head is difficult to interpret, and archaeological evidence from this time attests to a wide variety of actual blade forms in use.

Examples from Alise and Osuna, which may be dated on historical grounds to battles in the Gallic campaign of Caesar, of 52 and 45 B.C. respectively, illustrate a wide variety of forms.[1] Some from Alise, in their original state, may have corresponded to the metre length of Dionysius, but the longest fragment actually recovered did not exceed 60cms., and no complete example reaches this length even. Many are considerably shorter; some only 15-20cms. The shank is sometimes round, sometimes squared, with the method of hafting either in the form of a socket, or a tang with rivets,- one of them with a ferrule to avoid splitting the wood. The head is either: barbed with four hooks, pyramidal, conical, or flat and leaf-shaped. Others,, although this may be due merely to corrosion, seem to be without distinct heads, the point formed rather by a gradual diminishing of the shank. At Osuna the pyramidal head form is by far the most dominant, with most of the remainder flat; but with other characteristics as varied as those of

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1. de Reffye V. (1864) "Armes d'Alise"; Revue Archaéologique, I, p.337 ff.; Paris and Engelsay (1906) "Une forteresse ibérique à Osuna"; Nouv. Archives des missions Scientifiques, XIII, p.452 ff. pl.31-2.

Alise, save for a greater average length, varying from 30-68 cms. Neither is there any discernable rapport between type of head and length or method of hafting. Many displayed just that twisting and deformation of the shank which Caesar describes as a result of usage. It is possible that the discrepancy in lengths between the accounts of the military commentators and the known archaeological specimens, is due to the reforging of a tip on to a broken shank; the reference of the military manuals being rather to what was ideally specified rather than to what was deemed practical by men in the units,- the form defined by usage rather than prescription.

The pilum continued to exist and develop during later Imperial times, and a large number survive especially on the Rhenish limes, as at Wiesbaden[1] and in the Teutoburgerwald at Grotenburg.[2] The weapon apparently maintains its former characteristics during the first two centuries A.D. with little variation save a general increase in length, even surpassing in some cases the length estimated by Polybius; reaching between 70 and 100 cms. at Mayence,[3] and 106 cms. at Castille Orlen.[4] A stout shank, often

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1. Schulten A. (1914). Das pilum des Polybus., p.485ff.
2. v. Petrikovits H. (1951), Eine pilumspitze von der Grotenburg bei Detmold; Germania XXIX pp.198-210, abb.1-5
3. Daremberg C. and Saglio E. (1873-1919), vol.IV, sub pilum, fig.5677.
4. Ibid. fig.5679

tetragonal in section as described by Appius,[1] with the head still predominantly pyramidal, but occasionally flat and foliiform or barbed, and the two methods of hafting, both by tang and socket are still found in use, with one or two rivets. Evidence from funeral stelæ indicates a shaft of some three times the length of the iron head, making a total length of some 3-4 metres, and not infrequently terminated by a conical ferrule.[2]

By the third century, however, Vegetius Renatus notes the replacement of the pilum among heavy legionary infantry, by two lighter javelins: the larger spiculum, a shaft of 160 cms. mounted by unum maius ferro triangulo some nine unciae in length, that is about 22 cms.; and a shorter version, the vericulum, with a shaft just about a metre in length, and the head some 12 cms.[3] The description of the head is enigmatic. Quicherat considered it to describe a three-faced pyrmid,[4] but in consideration of what we might term derivative forms, at for instance Nydam, it is probably a barbed form to which Vegetius refers here, although no doubt, as before, a number of different types of head might have existed concurrently. In addition,

1. Appius, Celtica, loc.cit.; and cf. Lindenschmitt L.(1958), Die Alterthümer unserer heidnischen Vorzeit, I.11,5.
3. Vegetius Renatus, De Re Militari, II, 15.
4. Quicherat, J.E.J. (1866) Le pilum de l'infanterie romaine; Mems. de la Société des Antiquaires de France, 1866, p.280
2. Couissin P. (1926) p. 362f.

Vegetius describes the legionary of the time of Diocletian carrying up to five hand-arrows, called plumbatae, in the hollow of his shield.[1] The pilum proper, however, he describes being taken up enthusiastically by barbarian auxiliaries, who carried two or three each under the name bebra,[2] a term recorded only once, but perhaps to be associated by metathesis with barba. Most scholars seem prepared to accept the development of the Frankish angon from this late auxiliary version of the legionary pilum.[3]

The hasta, although considered by contemporary observers to have been characteristic of auxiliary troops, no doubt found some minor role in general usage at the same time. Where found portrayed on stelae they show a clear derivation in form from the simpler kinds current in Central Europe since La Tène times; of moderate length overall, with the foliiform blade reinforced by a clearly defined longitudional midrib emanating from a short round socket.[4] These types are not infrequently met with in archaeological contexts, as at Unterkirchberg.[5] No doubt those finding a place in the sculptural convention would

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1. De Re Militari, I, 17.
2. Ibid. I, 20.
3. Eg. Dahm O. (1895) Das pilum; Bonner Jahrbücher XCVI-II pp.247-8.
4. Or, for instance, in the Trajanic reliefs of the Constantine Arch.
5. Knorr R. (1929) Terrasigillata von Unterkirchberg-Viana; Germania XIII, p.16, abb.6(1); and cf. Lindenschmitt L. (1858) I, 12, 4-5.

form the traditionally ideal type, but in practice many less expensive spear-head types are found, similar, but without the emphatic midrib, like those from the Rhine at Gutshof.[1] Horsemen depicted on the monuments frequently carry a spear, but insufficient detail is given to recognise any particular type, like the long and heavy contus of Vegetius,[2] adopted from Sarmatian cavalry and weilded with both hands without the protection of a shield. Other of the cavalry apparently carry barbed javelins, as on the stele of C. Marius Equ. Leg. I.[3] This is not described in contemporary literary commentaries, but it is interesting to note that the bebra, in all probability modified as the Frankish angon, is accorded by Procopius to both infantry and mounted soldiers.[4]

Very few finds of the Roman period have been preserved in such conditions as to allow for the survival of wooden shafts, but fraxinus is recognised at the native site of Llyn Cerrig Bach,[5] and Hazel (corylus) at Newstead.[6] At Llyn Cerrig Bach too, as from the Celtic temple on

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1. Fremersdorf F. (1933) Das romische Gutshof, Koln. taf.26-8.
2. Vegetius, Op.cit. III 24.
3. Daremberg C. and Saglio E. (1873-1919), fig.2690, and cf. 3725, schematic within a medallion.
4. See p.
5. Fox C. (1946) A find of the early Iron Age from Llyn Cerrig Bach, p.98
6. Curle J. (1911). Newstead, A Roman Frontier Post., p.188

Farley Heath, spiral coils of bronze ribbon, originally nailed to the remains of ash staves, might well present some decorative or protective form of shaft binding.[1] The use of pyramidal or buttoned-terminated ferrules to protect the butt of the shaft are noted occasionally,[2] but the practice seems to have been so generally abandoned within the Empire that it is found even on the conventional stelae only very rarely, as in one instance where Rome personified as an Amazon, is deliberately armed throughout in an antique manner.[3]

The nature of the spear throughout Roman times is sufficiently commonplace for ornamentation of a proudly personalised form, to have been virtually unknown. There are no rich inlays, but just one or two instances with scratched marks in the surface of the blade. On one, from the Rhenish limes, the owner's name is apparently marked on one side punched in dotted lines, perhaps referring to his status among primi pili, and on the reverse a punched trident symbol.[4] And on others like that from Newstead,[5] occurs the simple sort of maker's or owner's

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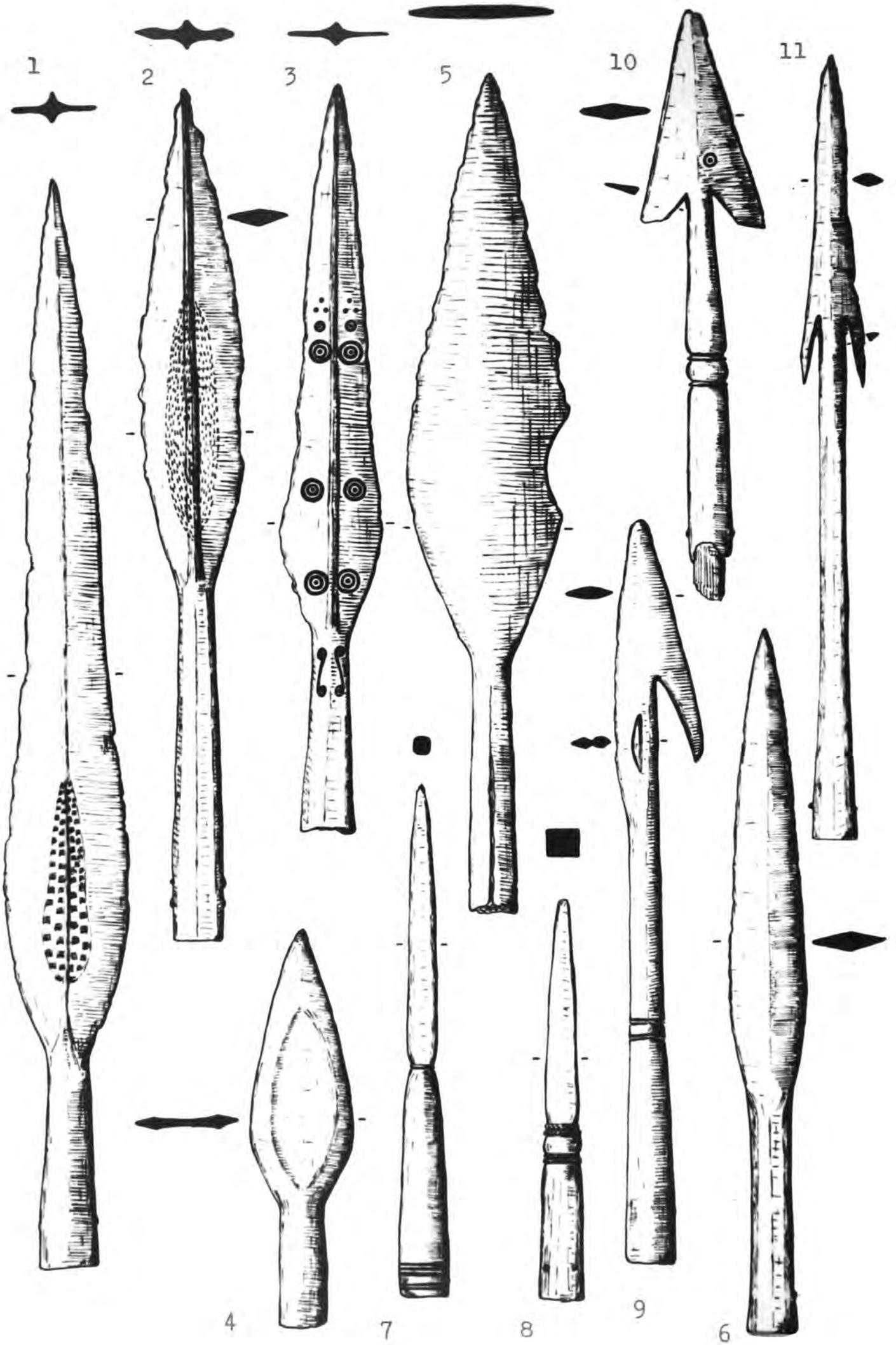
1. Fox C. (1946) p.86, pl.xvi; Goodchild R.G. 1938. "A priest's sceptre from the Romano Celtic temple at Farley Heath, Surrey"; AntsJ. XVIII, pp.391-6, pl.77-8.
2. Curle J. (1911), pl.38(12-13, 15-17); or Webster G. (1960). The Roman military advance under Ostorius Scapula; Arch J. CXV, p.83, fig.5 (129).
3. Reinach S. (1909), Repertoire de reliefs grecs et romains, I, 245.
4. Fremersdorf F. (1929) Neue Inschriften aus Köln; Germania XIII, pp.136-7, abb.2.
5. Curle J. (1911),p.188,fig.20; and cf. Webster G. 1960,p.86, pI.XI(d).

mark that is found also on knives or axes of the period.[1]

The Roman Iron Age in free Germany, sees the major elements of external influence, as in every age before, primarily from the south and west, although maintaining too, a strongly conservative tradition at the same time.[2] Danish bog finds from Vimose, near Odense, and Thorsberg in Angeln, dateable approximately to the late second and third centuries, contain predominantly Romanised, or provincial Roman material,[3] the armament including auxiliary type weapons like the long spatha, apparently used in conjunction with the large round Germanic shield, or elaborate parade helmets. With regard to the forms of the spear at this time, however, a correct appraisal of the degree of Roman influence on Germanic types is difficult to attain. The already established forms of northern La Tène III, like the Hallstatt weapons before them, represent an existing tradition emanating from Central and southern Europe, and what we see now is the convergence of another Mediterranean element, without any possibility of discovering which to

1. Eg. Koethe H. (1937) Anlagen auf dem 'Marsfeld' in Versontio Besançon; Germania XXI, p.248, abb.1(3)
2. Geig S. (1926), Hadelands eldste bosetningshistorie pp.46-85
3. Werner J. (1941), Die beiden Zierscheiben des Thorsberger Moorfundes, emphasises the strongly provincial Roman character of much of the material.

Fig.3. Spears from Vimose. Copenhagen Mus.
(1) Regs 23553. (3) 23550
(4) C4141. (6) 23546. (7) C1810.
(10) 23945. (11) 23883.
(2,5,8,9) Unregistered.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be dominant or decisive factors. The discernable pattern of types throughout free Germany during the Roman Iron Age, however, seems simple and more or less universal, with just one or two regional distinctions.

The entire range of Germanic types current during the earlier Roman Iron age, is perhaps best exemplified from the bog deposit at Vimose, supported by reference to finds elsewhere. Most frequently found are simple foliiform blades of moderate length, the widest part towards the middle, with or without slender midribs extending from sockets of short or moderate lengths, which at Vimose, but rarely elsewhere, are octagonally facetted; (fig.3 (2,6)). Clearly deriving from earlier types, exemplified at Hjortspring, similar pieces are found in Continental Germany,[1] mainland Scandinavia,[2] and even the hinterland of Baltica.[3] Similarly derivative from earlier La Tène

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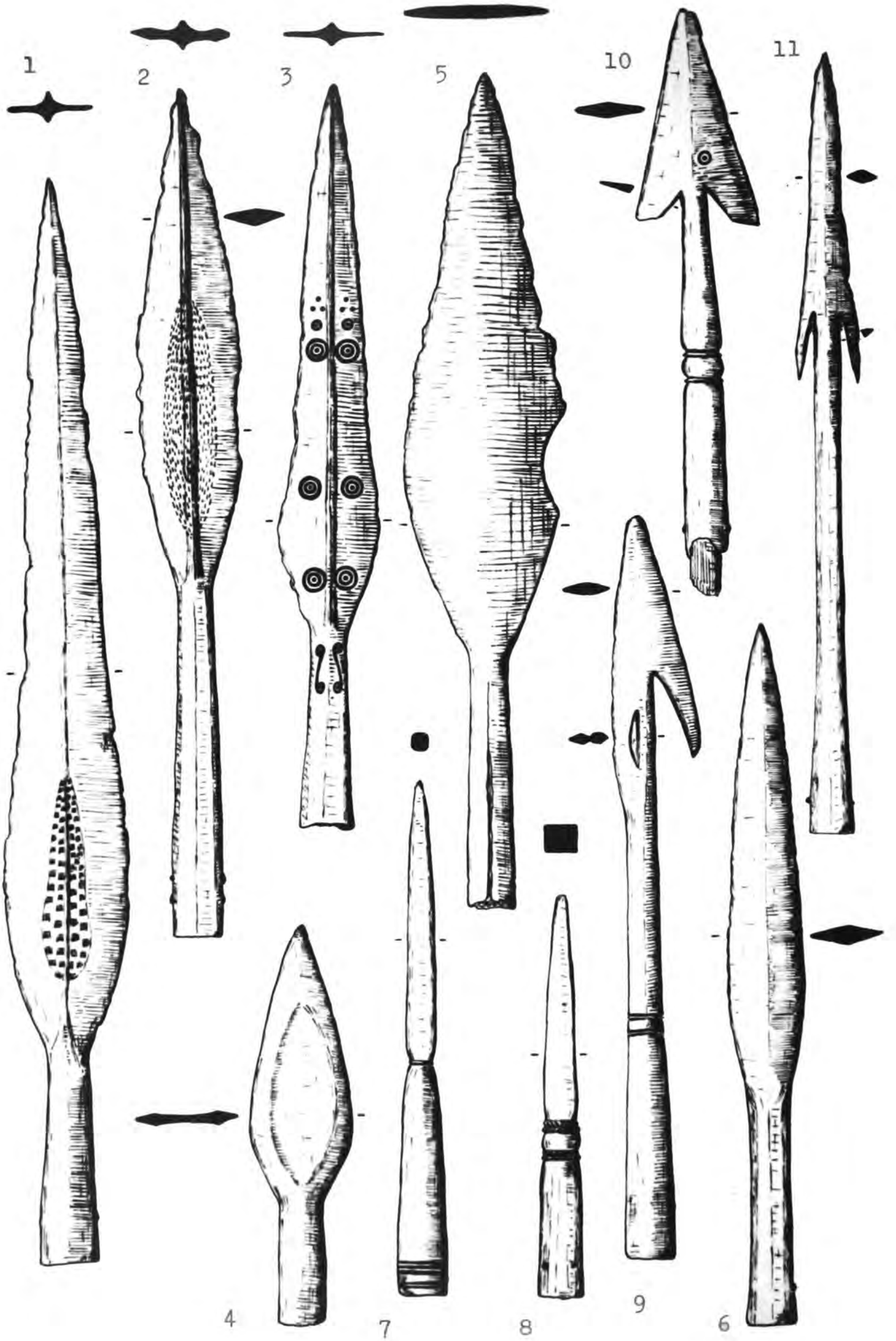
1. For instance from Prositz: Coblenz W. (1955). Das Gräberfeld von Prositz; graves 30, 56, 77a, 81 etc.; or from Nienburg: Tackenberg K. (1934) Die Kultur der frühen Eisenzeit, p.48, taf.10(5); or Hamburg: Tischler F. (1954) Das Gräberfeld Hamburg-Fuhlsbüttel, taf.52.
2. For instance, graves from Gaasinge, (Södermanland) or Frälsegaarden, (Västergotland); S.H.M. regs. 8035 and 20653, respectively. And more extensively on Gotland and Öland: Almgren O. and Nerman B. (1923) Die Ältere eisenzeit Gotlands II. p.117, taf.42; Eckholm G. (1935) Forntid och Fornforskning i Skandinavien. p.180; and cf. Albrectsen E. (1956) Fynsk Jernaldergrave II pp.186-8 fig.47.
3. Kivikoski E. (1947) Die Eisenzeit Finlands I. pp.20, 28, taf. vii 51-4, xx 145-6.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3. Kivikoski E. (1947) Die Eisenzeit Finlands I. pp.20, 28, taf. vii 51-4, xx 145-6.

forms, and almost equally common, are broader foliiform blades with the widest part toward the bottom and a strickening above, with invariably a slender midrib throughout the length of the blade, emanating from a shortish, occasionally facetted socket; (fig.3 (1,3)). These too occur, in lesser numbers, over the same areas of Germany, and Scandinavia.[1] A single example of the more extravagant La Tène variety survives at Vimose, (fig.3 (5)): a broad flat blade of the last type described with a semi-circular clipping removed from one edge.[2] More significantly, an innovation into slender examples of the last type is found in the introduction of parallel lunate fullers in the lower part of the blade, either side of a reserved central line which represents the midrib. The origins of this feature, a convenient method of economising on materials whilst preserving some of the strength and appearance of midribbing, might be found in the ultimately slender piece from a La Tène grave at Vallbys on Gotland,[3] but at this time similar finds are restricted to Denmark,[4] most notably

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1. Kossinna G. (1936) Die Deutsche Vorgeschichte, p.193, abb. 394; Tackenberg K. (1934) p.48, taf.10(4); Oxenstierna E.G. (1958), p.62, abb.94; Almgren O. and Nerman B. 1923, taf.45 (635-6).
2. Cf. and example from Fyn, with a midrib: Albrechtsen E. (1956), p.29, fig.47a.
3. Nylén E. (1955), pp.78, and 520, fig.179(6).
4. Albrectsen E. (1956) pp.186-8, fig.47c, tav. 2c. 41k.

from a grave at Moderup found together with a knife with a single fuller of the same character, and a single example, perhaps a stray, in Finland.[1] In a typologically subsequent form, as found in a first century La Tène III grave at Urmitz near Mainz,[2] the separate fullering merges to form a single shallow depression in the middle of the blade. It is this form that is found in a single instance at Vimose, (fig.3(4).

The narrowest midribbed type from Hjortspring becomes more slender still during the Roman Iron age, as at Sättra or Dalby on Öland,[3] and on Gotland is reduced at Hallbjeans-Bjärges to little more than a square sectioned spike with the lower part exhibiting two vestigially narrow lateral blade parts flanking a stout midrib before extending below into a barely perceptible socket.[4] Elsewhere this becomes merely a square sectioned spike with a round socket,[5] and this, with variously neatly balustered junctions, is the form taken at Vimose, (fig.3 (7-8). Although found later occasionally in north-west continental Europe, this is

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1. Oxenstierna E.G. (1938) pp.62-3, fig.96.
2. Ashmolean Museum regs. 620. 1888.
3. Stenberger M. (1933) Öland under Äldre Järnaldern pp.45-6 fig.34 and 36
4. Almgren O. and Nerman B. (1923) fig.634; and cf. Kivikoski E. (1947) p.28 fig.148.
5. Almgren O. and Nerman B. (1923) fig. 633; and cf. Kivikoski E (1947) p.28 fig.147; Oxenstierna E.G. (1958) p.63. fig.98.

originally an essentially northern development, later still becoming particularly characteristic of Baltica.[1] Another surviving northern element, found elsewhere than Vimose or other Danish bog deposits, is the occasional angular profile from, for instance, Gotland, or Finland again.[2]

One new element in the Vimose series clearly to be ascribed to a source of Roman influence is the introduction of barbs, absent in the Germanic repertoire before this time, but subsequently to form one of the most characteristic features of Teutonic weapon groups until the middle of the seventh century. In the Vimose deposit a wide variety of barbed darts were found which might be regarded as Germanic modifications of the pilum: short for the most part, with broad flat barbed heads on balustered or polygonally facetted sockets reminiscent of Appius' description; or with thinner longer lozenge-section heads and sharper barbs closer to a socket invariably with twelve facets and a single transverse rivet at the mouth, (fig.3 (10-11)). Others have one side of a foliiform blade cut away to provide a single flat barb, (fig.3 (9)),[3] which might perhaps

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1. Hackman A. (1905) Die Ältere Eisenzeit in Finland I. pp.264-273. taf. 18 (2-5).
2. Almgren O. (1914) Die Ältere Eisenzeit Gotlands. I p.10 fig. 94; Hackman A. (1905 pp.262-74 taf.17(4).
3. The example figured presents the additional feature of a lunate fullering in the remaining half of the blade, which perhaps represents typologically the beginnings of a double barb, or is alternatively employed, as in the insular K series, to simulate midribbing. (See p. 217.)

be considered a modification of the longer Roman flat foliiform variety, which had already been found in Germanic contexts, as at Prositz.[1] Similarly varied forms seem a characteristic feature throughout the regions of free Germany:[2] among the Teutones of the Elbe, the Vandals of Silesia and Burgundians east of the Teutobergerwald, as well as of other sites within the more nrotherly interior. While some of the elaborate Vimose types are found elsewhere, at Aska Backe, (Östergotland) for instance,[3] most are rather simpler than these, often with a longer shank and squarer section tip bringing them more into line with Roman types.[4] It is possible, of course, as Cowan believed,[5] that the apparent predilection of Germanic tribes for the shorter more elaborate barbed variety, emanates from some prior La Tène series of barbed spears, and was thus in no way influenced by Roman pila forms; but this view is by no means supported by archaeologically attestable evidence,[6] and seems more likely to have

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1. Coblenz W. (1955) grave 69.
2. Schulz W. (1939) Vor und Frügeschichte Mitteldeutschlands, pp.182-3, abb.231; and cf. Jahn M. 1916, p.89, abb.95-7.
3. Oxenstierna E.G. (1958), p.62, fig.95; and cf. Almgren O. and Nerman B. (1923), p.119, taf.43 (608-10).
4. Oxenstierna E.G. (1958), p.62, fig.94 etc.; Almgren O. and Nerman B. (1923), p.119, taf.43 (611-2); Stjernqvist B. 1955, Simris, graves 41, 45 etc.; Eckholm G. (1925), "Gravfältet vid Gödåker", Fornvännen, 1925, fig.171.
5. Cowan J.D.(19488), "The Carvoran Spearhead again", Arch. Ael. XXVI, p.142.
6. Finland, for instance, which we might expect a priori to be in receipt of any Germanic hinterland forms, does not exhibit the characteristically long tanged barbed type until the Migration period; Kivikoski E. (1947) pp.37-8,55.

arisen due to the commonplace miscomprehension of the developed forms adopted by the Roman pilum during the later period of influence across the Rhenish limes. The significant form for study is not the classical specification of Polybius, but as we have seen, the later modifications of Vegetius which the barbarian auxiliaries so enthusiastically took up.[1] Certainly, it is only from this time that we find them in sudden and large numbers.

We have already noticed the generally personalised attitude of the Teutonic warrior towards his weapons, and one characteristic feature of spear-heads found in free Germanic areas which is recognisably distinct from the Romanised interior, is in the nature of the frequently very rich ornament applied to these weapons. The manner of decorating the blade of many of the foliiform heads, and the occasional angular one too, which we noted first at the end of the pre-Roman La Tène period, becomes increasingly popular; but the earlier east German mode of all-over hatching with zig-zag chased lines or irregularly etched blotches,[2] has now been largely replaced, and entirely so at Vimose (fig.3 (1-2)), by a more restrained

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1. Roman policy at this time was, of course, to encourage auxiliary troops in the use of weapons familiar to them from their tribal practise. At the same time, the Vimose type shanks are sufficiently stout to resist fracture on impact, but conversely, this is no longer prescriptive in Vegetius.
2. Jahn M. (1916) Loc. cit.

fashion taking the form of variously shaped lunate areas either side and sometimes extending on to, the lower mid-ribbing of foliiform blades, filled with delicately scribed lines, often in elaborate patterns, and sometimes laid onto flatter areas apparently made to receive the decoration. The effect achieved is frequently reminiscent of the sort of incised hatching that Mrs. Hawkes considers to have been utilised during the fifth century to secure the silver sheet inlay of a certain class of ornaments to its bronze backing,[1] but on one of the many surviving examples examined does any part of such silver application remain, and the work is usually much finer than the more violent stabbing which would be required were there any relation between the two techniques. Decoration of this kind, in a wide variety of patterns, but featured most commonly on the broad midribbed blades with strickening in the upper part, is found throughout Scandinavia during this period,[2] but survives best on the well preserved surfaces of Moss deposit pieces. It is probable that the punched and chased lines of more northerly examples represents a later imitation of earlier etching techniques. Again, however, the major

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1. Hawkes S.C. (1961). The Jutish Style A.; Arch. XCVIII pp.43-4.
2. For instance: Almgren O. and Nerman B. (1923), p.117, fig.602-4.; Klindt-Jensen O. (1950). Foreign influences in Denmark's Early Iron Age. p.44 fig.17-8

concentrations of weapons decorated in this manner are found in the eastern parts of continental Germany, where they extend throughout the Roman Iron age from the first to the fourth century.[1] Overall decoration continues in favour here, like the third century example from Lerchenburg (Silesia) or one from a fourth century grave at Wilhelmsau (Brandenburg).[2] Another example from Georgendorf (Silesia), in addition to all-over etched patterning, exhibits on the junction and at the tip two inlaid patterns in gold: an irregular crescent and a circle repeated twice.[3] It is a singular occurrence to find such differing modes of ornament on a single blade, but at this time a relatively large number of spear-heads are decorated with inlay in copper, gold or silver, singly or in combination.

At Vimose, concentric circles, ring-and-dot, or merely simple dots are symmetrically inlaid in silver and copper on the blades, sockets and junctions of both foliiform spear-heads and barbed darts, (fig.3 (3,10)); and similar simple geometic inlaid patterns, particularly the ring-and-dot motif, are found throughout the Germanic area at this time, for

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1. von Merhart G. (1940). Wiener Praehistorische Zeitschrift, XXVII, p.86.
2. Kossinna G. (1936), pp.191-2, taf.34; and (1905) Zeitschrift für Ethnologie, 1905, p.383.
3. Kossinna G. (1936), p.193, taf.35; and cf. Lindenschmitt L. (1858-1900, IV, taf. 49(2).

instance, at Simris in Skåne,[1] on spear-heads, (although rarely on other weapons) as well as more conventionally on bronze jewellery.[2]

Kossinna, like Jahn, fails to distinguish between these inlaid spear-heads, and etched or engraved ones, ascribing both to a source within the eastern Germanic regions,[3] but later, Eisenkolb has shown clear and distinct lines of development for both of these elements from later La Tène times.[4] Holmqvist's more recent study of early inlaid metalwork in general, however, shows that although both types of ornament apprently emerge from the same region at the same time, and even occasionally on the same weapon, as at Georgendorf or Rynkeby Mose; the two modes of decoration are totally distinct, and inlaid spear-heads are to be more justifiably grouped together with other commonly inlaid but un-etched or engraved objects.[5] While admitting the possibility of some initial impulse from Marcomannic regions some inlaid objects from the north are to be dated at least as early as the middle of the second

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1. Stjernqvist B. (1955), grave 41, pl.xvii; and cf.Sörling E. (1940) Silverinlagda spjutspetar från Romersk Järnålder, funna i Svensk jord; Fornvännen 1940 pp.92-102, fig.1-6.
2. Eg. brooches in bronze inlaid with silver concentric circles or circle-and-dot motifs in Bergen Museum from Staurnes, Møre og Romsdal (regs. B719), and Fedje, Sogn og Fjordane (regs. B8031)
3. Kossinna G. (1936), p.210ff; and cf. Jahn M. (1916) p.214ff.
4. Eisenkolb M. (1941) "Eine ostgermanische verzierte lanzenspitze im Prager Landesmuseum", Altböhmen und Altmähren, I, p.94ff.
5. Holmqvist W.(1951) Tauschierte Metallarbeiten des Nordens, pp. 68ff. 77ff.

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5. Holmqvist W.(1951) Tauschierte Metallarbeiten des Nordens, pp. 68ff. 77ff.

century. Certainly, unlike the minor Scandinavian engraved group, the northern inlaid group is by no means to be lightly dismissed as a weak offshoot of an eastern Germanic series, and finds from the former area number half again as many as those from the latter area.[1] There seems a strong case therefore for considering this sort of spear-head ornament at least equally indigenous to Scandinavian Germanica.

A few more elaborately inlaid examples are recorded from Continental Germany. From Mogilno in western Poland comes a foliiform blade curiously inlaid with a number of variously round triskeles, fylfots and curls,[2] while similar blades from, Münchburg, in Brandenburg, or Kovel on the western border of the Ukrainian S.S.R.,[3] exhibit rather more complex patterns involving patently mystic symbols and runic inscriptions in the Gothic or Northern Germanic dialect of the third and fourth centuries to which date this series must be ascribed.[4] A single piece from Akkas, (Finland) has the junction between blade and socket simply inlaid in silver and copper with alternate dots and

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1. Stjernqvist B. (1955) p.121, and note 101.
2. Kossinna G. (1936), p.194, taf. 36, abb. 396.
3. Ibid. pp.193-4 taf. 35 abb.395, taf. 36 abb.397.
4. The fylfot and so called lightning symbols are discussed briefly by Götze A. (1909). Ostgermanische Helme und symbolische Zeichen; Mannus I. pp.121-3; The runic inscriptions are dealt with fully by Krause W. (1937) Runeninschriften im älteren futhark, pp.441-5. And see section VII, p.665.

crosses between two encircling lines;[1] but more comparable with the eastern Germanic series is that from Stenstugu (Gotland) with various symbols, including one made up of four straight wires meeting at a point marked by a circular inlay of red enamel,[2] or more especially those from Mos, again on Gotland,[3] and Øvre Stabu in Norway,[4] which also incorporate runic inscriptions in addition to more arbitrary patterns. The Mos inscription may be dated as early as about 200 A.D.[5] thus precluding the suggestion that this might form part of the general Gothic culture stream, and it seems more likely, that, like the enamelling at Stenstugu, this emanates as an influence from southern Germany or Marcomannic areas some time during the second century.

Wooden shafts recovered from the wet conditions at Vimose were found in large numbers, complete examples measuring from 2.88 to 3.54 metres long, with whittled conical points stepped to take the socket dowel, and rounded butts without ferrules of any kind.[6] Some retained bronze rivets, but unfortunately none of the iron

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1. Hackman A. (1905) p.268, taf.18(1).
2. Almgren O. and Nerman B. (1923), p.117, taf.42a.
3. Ibid. pp.117-9, fig.204.
4. Bugge S. and Olsen M. (1891) Norges Indskrifter med de ældre Runer, I, p.413, 415-6.
5. From a grave associated with a hemispherical shield boss, balustered barbed dart, and a rectangular-looped and plated buckle; Marstrander C.J. (1952) De Nordiske Runeinnskrifter i eldre alfabet; Viking XVI, p.164.
6. Engelhardt H.C.C. (1869) p.21.

spear-heads remained to provide rapport with any one of the complete shafts, so that the manner of usage of any type could not be speculated upon. From the earlier Thorsbjerg deposit a number of shafts were found of comparable lengths: 2.47 to 3.13 metres, and of the same form, the diameter commonly about 2.6 cms. and uniform throughout the length. Engelhardt notes that the wood most commonly found at Vimose as elsewhere was fraxinus,[1] but makes no further comment, and it has not to date proved possible to have any check analyses made for other species except at Nydam. In the balanced middle of some of the shafts were occasionally found either a small row of rivets or a small mounting of bronze, which might have been used for the fixture of the cord or thong of amenta, of which no further traces remain;[2] but the longest of these shafts could scarcely have been used as missiles, and it is the opinion of the excavator that they formed equestrian lances.[3] Two shafts of a similar size were discovered in a single grave at Gödaaker, (Uppland) dated by an imported Roman bronze vessel to about 300 A.D.[4] Each about the same length, a little over three metres, they belonged to a set comprising a barbed dart and a foliiform

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1. Loc cit.; and cf. (1866) p.56.
2. Engelhardt H.C.C. (1869) p.22.
3. Engelhardt H.C.C. (1866) p.57.
4. Eckholm G. (1925). Gravfältet vid Gödaaker; Fornvännen 1925. pp.326-46 fig.171. In situ fig.168.

midribbed spear-head. "Sets" of weapons like this form a regular feature throughout northern Germanica at this time,[1] and surviving to the end of the Scandinavian Migration Age, provide a useful means of dating in many instances as Fett has shown to advantage.[2]

Ferrules appear as rarely as at any time before, and seem to have been restricted, as in later times, to more expensive or elaborate weapons like that from Smaagaarda, (Gotland).[3] The discovery of such ferrules at this time is less critical, however, as lengths in general might well be assumed from completely preserved examples.

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1. For instance, at Simris; Stjernquist B. (1955). graves 41, 45, 54. or Sättra, Öland, Stenberger M. (1933) loc.cit.
2. Fett P. (1940). pp.72-9 et passim
3. Almgren O. and Nerman B. (1923). fig.636.

The Migration Period. The difficult question of the pattern of Germanic spear forms at the beginning of the Migrations, is possible to assess more adequately when seen in correct perspective. It has been possible to build up a picture, sketchy in parts, but more or less complete, of the nature, forms and purpose of spears in use among Germanic tribes generally in the relevant periods prior to the fourth and fifth centuries' folkwandering which resulted in the settlement of Anglo-Saxon England. But many difficulties are to be encountered in attempting to trace the exact genesis of many of the types of spears familiar from insular cemeteries of the later fifth and sixth centuries. The most obstructive lies in the almost total absence of archaeologically dateable material from the traditionally critical areas, Jutland, Angeln and the Elbe-Weser littoral. During the first and second centuries A.D. examples known from Schlesvig-Holstein, seem essentially to follow the La Tène III tradition in all respects,[1] but the general prevalence of cremation rather than inhumation as a funerary mode results in the fact that study objects for this period from dateable contexts, are reduced, for the most part, to cinerary urns and smaller items of jewellery,

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1. Tischler F. (1937) Fuhlsbüttel, ein Beitrage zur Sachsenfrage, p.55

The continuing hiatus, at least until the sixth century, is shown by the studies of Genrich, Werner, Mildenberger and Tischler.[1] And such few remains as there are from these traditionally critical areas, are largely decayed due to poor soil conditions in these generally sandy lands. On the other hand there has been no reason, hitherto, to recognise any specifically detailed regional quasi tribal characteristics, save of the widest kind, within any part of the very wide area of northern Germanic culture, and so there seems little reason to doubt the validity, albeit expedient, of commentary from other finds within the region, as from the Danish Moss deposits.

In addition, recent work by Professor Werner, defining the Furfooz, Vermand, Monceau-le-Neuf series of warrior grave groups of northern Gaul, as those of Germanic laeti or foederati settled by policy within the limes about the middle or second half of the fourth century,[2] brings another more adequately dated if rather sparser series of objects to light, which although for the most

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1. Genrich A. (1954). Formenkreise und Stammesgruppen in Schlesvig-Holstein; Werner J. (1958). Kriegergräber aus der erster Hälfte des 5 Jarhunderts zwischen Schelde und Weser, Germania CLVIII pp.372-413; Mildenberger F.(1959) Die Germanischen funde der volkerwanderungszeit in Sachsen; Tischler F. (1956) Der stand der Sachsenforschung, archäologisch gesehen.
2. Werner J. (1950) Zur entstehung der Reihengräberzivilisation; Archaeologia Geographica I, pp.23-32. Discussed by Hawkes S.C. (1962) Soldiers and settlers in Britain, fourth to fifth century; Med. Arch. V. pp.7-10.

part inadequately published, must be borne in mind during the consideration of the pattern presented at the beginning of the migration period. And that this contention has already insular significance, has been recognised by Mrs. Hawkes, drawing attention, incidentally, to weapons from the neglected upper levels at Richborough, and concluding with a re-emphasis of the essentially mixed nature of the earliest settlements, and for the whole of sourthern England a probably Frankish element from the mouth of the Rhine.[1]

The most useful single point of reference to the range of spear-heads in use immediately prior to the period of migrations, is still to be found in the great Moss deposit of Nydam I in Sundeved,[2] dateable as a whole within the second half of the fourth and earliest fifth centuries, which might be supported by two newer Danish moss finds: from Ejsbøl near Haderslev,[3] and Illerup, Skanderborg,[4] which are considered tentatively at the moment as approximately comparable in date. While no absolute chronology can be pretended for these moss finds,

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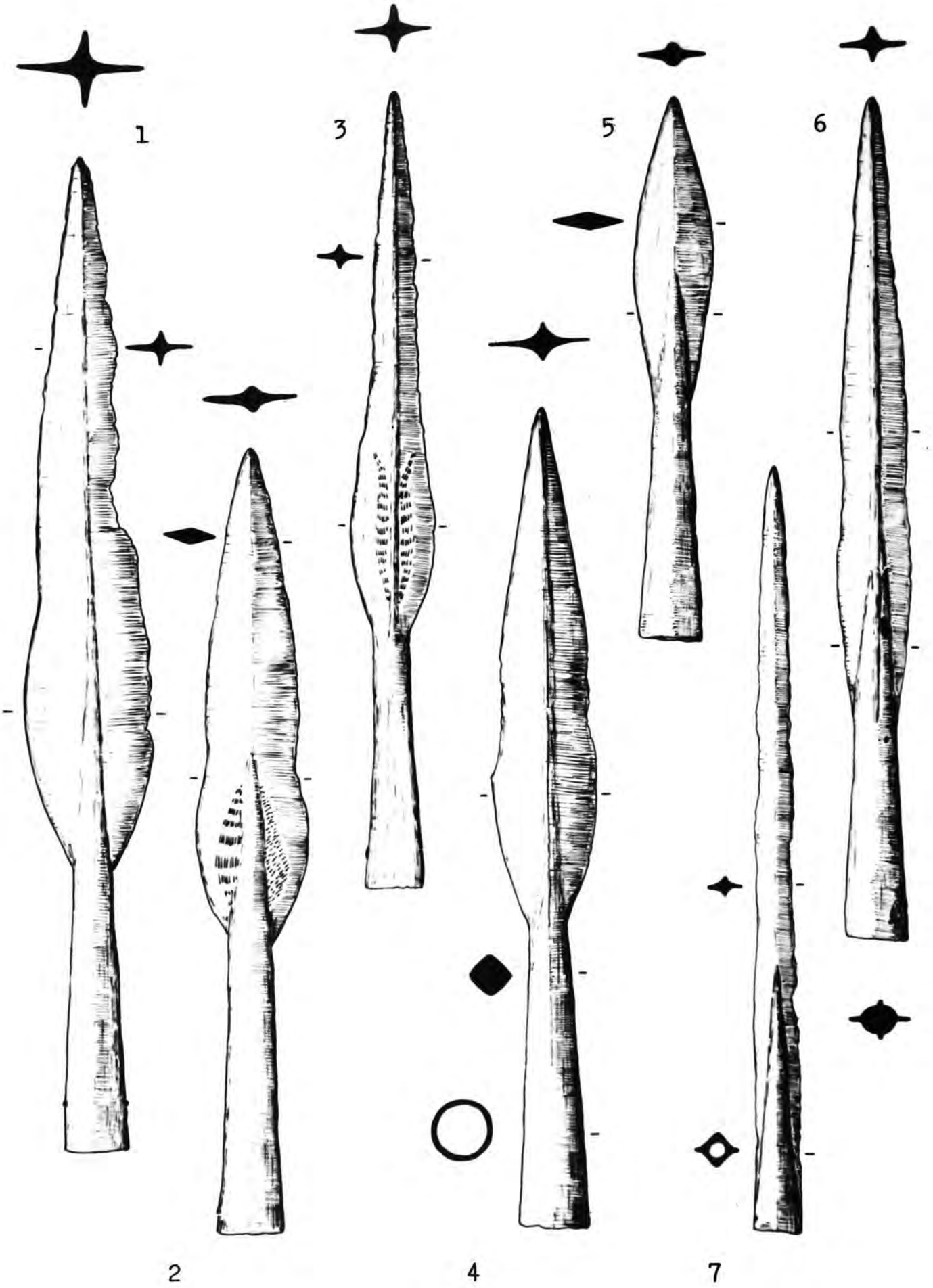
1. Hawkes S.C. (1962) pp.17, 40.espec.
2. Engelhardt H.C.C. (1865) Nydam Mosefund. pp.26-9, pl.x-xi.
3. Ørsnes M. (1959). Nyviden om jernalderens vaabenofre; Nationalmuseets Arbejdsmark. 1959. pp.101-8
4. Anderson H. (1951). Det femte Store Mosefund; Kuml 1951 pp.9-22. These references take the form merely of notices of discovery, and I am grateful to the excavators for discussing the finds with me before proper publication.

Fig.4. Spears from Nydam. Schleswig Museum.
(4) 7101. (5) 4166. (6) 4130.
(1-3,7) Unregistered.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which, unlike those associated with the Hjortspring boat, were obviously laid down over a period of time, there is no clear evidence for extensive deposition beyond these limits, as there is, for instance, at Kragehul near Assens, which includes amongst material from the fourth century, decorated spear-shafts which could hardly have been deposited before the beginning of the seventh century;[1] which detracts from the value of rare and significant spear-head forms included in the find.

Most of the basic forms are well illustrated from the Nydam I deposit, (figs. 4 and 5 (1-6), where each can be shown to have clearly Germanic antecedent forms. The two major divisions of the earlier Roman Iron Age survive: simple foliiform blades on the one hand and the various kinds of barbed dart on the other; the former apparently having become yet more varied since Vimose times, and the latter, although equally numerous, much less varied:

1. (fig.4(1-3)) One of the most common profiles since La Tène times;[2] is a foliiform blade, usually rather broad, and especially so towards the base with a concave strickening above; a high slender midrib throughout the length of the blade, or more rounded and falling towards

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1. Engelhardt H.C.C. (1867) Kragehul Fundet. p.5, pls.II-III.
2. See this section, pp. 42-3.

the middle, in either case forms a physical continuation of a neatly welded socket of moderate proportions, something like a third of the whole; often quadrangular at the junction but lower down either round in section, or elaborately facetted, with a single transverse bronze rivet at the mouth. Lengths of this type at Nydam I vary between 22 and 35 cms. The only type commonly decorated now, this clearly represents a conservative tradition from La Tène times preserved in the Germanic north,[1] and spread more generally throughout Europe in the course of the first folkwanderings. It is found, for instance, in grave J10 at Furfooz.[2] If this is a conservative element at this time, then it is also a decaying one, and the form is rarely found later.

2. (fig.4 (4-6)). An equally common group at Nydam I, the simpler universal foliiform blade 19 to 29 cms. in length, is most often narrower than the former type, with the widest part of the blade towards the middle, but otherwise exhibiting similar features: a sharp midrib throughout the length of the blade, or more rounded and falling towards the middle, emanating from a round socket, usually with a quadrangular section junction. This simplest

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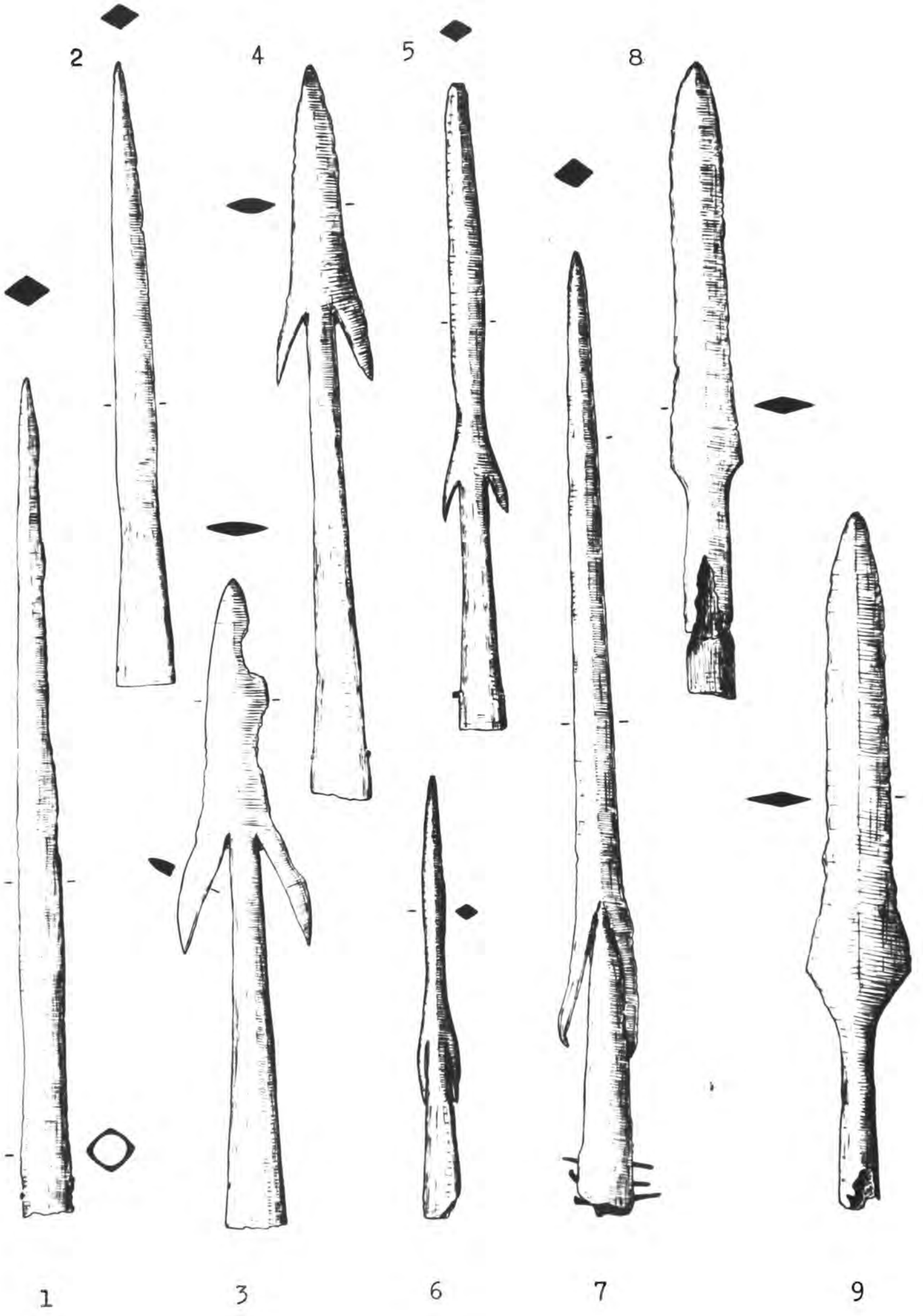
1. For instance, in Östergotland; Oxenstierna E.G. (1958) figs.117-20.
2. Nenquin J.A.E. (1953). La Nécropole de Furfooz; with slight midribbing; p.82 fig.18.

Fig.5. (1-6) Spears from Nydam, Schleswig Mus.
(7-9) and from Kragehul. Copenhagen Mus.
(4) Regs. 4436. (5) 7668. (7) 22487.
(8) 22546. (9) 22489. (1-3,6) Unregs.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of types survives throughout all periods since the earlier Hallstatt experimental examples, and is by no means confined to the Germanic north, represented at this time, for instance, on the sculptured monument at Rheims to the fourth century Gallic consul Jovinus.[1] This type too is found in the later fourth century graves of supposed laeti of north-east Gaul, for instance, at Molenbeek-St-Jean (Brabant).[2]

3. The narrowest foliiform derivative, (fig.4(7)), as earlier on Öland,[3] takes the form merely of a quadrangular section spike with a short socket flanked on the lower part by two rudimentary blade pieces. A small but variable group at Nydam,[4] measures from 23 to 27 cms. in length.

4. A rather larger group at Nydam, that to which the former type had been progressing typologically, takes the form of merely quadrangular section spikes with short round, or more rarely quadrangular or polygonally facetted sockets (fig.5 1-2)). Lengths at Nydam I vary between 18 and 29 cms., corresponding to that from grave J15 at

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1. Boulanger C. (190-5). Le mobilier funéraire gallo-romain et franc en Picardie et en Artois. fig.6. A poor reproduction.
2. de Loë A. (1937) Belgique Ancienne III. p.252 fig.101
3. See this section p.63.
4. An intermediate form is exemplified in Schelsvig Museum regs. 7030.

Furfooz[1] where the type is paralleled.

5. Barbed darts, while being more or less as numerous as foliiform blades at Nydam I, are considerably simpler than the varied forms seen at Vimose.[2] Basically just two forms are to be distinguished: (a) those with wide barbs placed forward on a flattish blade, lentoid in section, with an invariably facetted socket, round or quadrangular at the junction, with twelve faces lower down; the whole measuring from 19 to 27 cms. in length.[3] An example from Furfooz,[4] reportedly 13.6 cms. in length might well be incomplete in the socket; (b) A second group at Nydam I, (fig.5 (5-6)), is much shorter in general, although varying from 15 to 28 cms., with a narrower but longer blade, quadrangular in section with thin barbs, sometimes placed close to the shank, far back behind a slight strickening in the blade. The sockets are shorter, proportionally, than in the former type, but similarly facetted with one or two transverse bronze rivets or nails at the mouth.

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1. Nenqin J.A.E. (1953) p.83 fig.18.
2. See this section p.64.
3. One remarkable piece, however, Schleswig Museum regs.4429 measures some 50 cms. overall.
4. Nenqin J.A.E. (1953) p.82 fig.18.

6. Engelhardt figures a single example from Nydam,[1] now unfortunately missing, which exhibits shallow fullers either side of a midrib in the lower part of a broad based foliiform blade. This is a single example only from a very large number of pieces, but forms useful evidence for the continuity into the end of the Roman Iron Age of a familiar, if rare, Scandinavian La Tène form, later known from England.[2]

7. Entirely missing however at Nydam, is any representative of the angular profiled group, which although rare, formed a persisten northern element since the Tidavad find of Hallstatt times.[3] Fragmentary, but clearly discernable angular profiles of a squat, primitive type, are known from a fourth or early fifth century deposit in Skede Moss on Öland;[4] small, short and broadish blades, the angle at the lowest point close to a short socket, extending into a firm but falling midrib on the lower part, which is in fact less of a Nydam type midrib, than a high backed lozengiform section. Another example, rather lighter and more slender, exhibits a slight concave curve above the angle extending towards the tip;[5]

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1. Engelhardt H.C.C. (1865) p.28, pl.x(21).
2. See this section p. 63, and section III, p. 217 ff.
3. See this section p. 37, fig.1(10).
4. S.H.M. regs. 11698
5. And cf. another example from Öland, at Dalby S.H.M. regs. 16470: 62-81.

which is rather better exemplified at Kragehul near Assens, (fig.5 (8-9), but which as we have seen is not to be closely or reliably dated. Similar forms, with or without the concave strickening, occur sporadically towards the south-west, at Quelkhorn II, between the Elbe and Weser littoral,[1] and from Furfooz graves J9 and 11;[2] the latter with the peculiarly southern adoption of languets placed on the "face" sides of the socket. A much larger example described from Vermand, found in a grave together with a fransisca is as likely to be rather later.[3] It is possible that these types were as common as any other in the critical regions from Jutland to the mouth of the Rhine, but for the reasons cited above, this seems likely to remain conjectural. Other, even less regular types occur, but are more appropriately dealt with where relevant, in the discussion of insular groups.

Decoration of the iron spear-heads of the earliest migration period is considerably more restricted than formerly in the Roman Iron Age. Engraved lunate markings, although as varied in design as hitherto, are more or less confined to the first Nydam type, and after this

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1. Waller K. (1959) Die Gräbfelder von Henmoor, Quelkhorn, Gudendorf und Duhnen-Wehrberg. p.28 taf.32f.
2. Nenquin J.A.E. (1953) p.82 fig.18.
3. Eck T. (1891) Les deux cimitières gallo-romains de Vermand et de St. Quentin. p.253 pl.xii(7).

time no more are found, unless the similarly placed lunate flattenings with border engraving of the familiar seventh century Vendel series are to be regarded as derivative from these.[1] Chronologically intermediate examples,[2] might be supposedly disfigured or hidden by corrosion where conditions of preservation are less admirable than at Nydam. Inlays of the Vimose kind, although still represented in the rather limited Rynkeby Mose find of the earlier fourth century,[3] are completely absent save for a single rather typical piece (fig.4 (6)), with a small oval bronze inset in the lower midrib, an irregular patch low on the socket, and a single gold dot at the junction. Apparently quite exceptional at about t this time, is the fine niello decoration of the lugged blade from the warrior's grave at Vermand.[4]

The custom of burying "sets" of spears or other weapons with the deceased, familiar from the earlier Roman Iron Age,[5] seems to have survived in Schleswig-Holstein, in grave 79 at Krummensee-Pötterberg,[6] as

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1. Olsén P. (1958) "Spjutspetsar av typ Vendel xiv"; Tor IV pp.87-97.
2. The earliest of this Vendel series is perhaps that from a grave at Raa, dated to the later sixth century; Gjessing G. (1934). Studier in Norske Merovingertid p.24.
3. Concentric circles and dots in gold and silver on either half of each face; Copenhagen Mus. Regs.5553 and 7180.
4. See p. 302.
5. See p. 73.
6. Genrich A. (1954) taf.19(1-2) nr.105.

elsewhere in the northern sector, although not, as it seems from the sparse evidence available, among the *laeti* groups of northern France.

III. CLASSIFICATION

The principles involved in the mode of division into series and groups adopted here, has been outlined already.[1] The basis of any particular grouping lies in the participation of all or most of a number of common characteristics relating primarily to the obvious consideration of profile proportions and size, and to a lesser extent of weight, cross section, or applied elements at the junction. Apparently insignificant features, as far as a formal classification are concerned, include the often arbitrary addition of languets, modification of the socket by jumping up or binding, the number and position of nails or rivets, the length, width, or even absence of, cleft, or the equipment of ferrules and plates to the shaft. It is not possible to distinguish absolutely, for instance, between Anglo-Saxon spears on the one hand, and either Roman or Viking on the other, by the presence or otherwise of a cleft in the socket.[2] But at the same time, subsidiary details such as this, while essentially insignificant overall, can provide useful supporting evidence for the establishment of any particular class. The presence of a closed welded socket, for instance, assists considerably in

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1. See section I, pp. 24-5, and cf. p.12 ff.
2. See section IV, pp. 373-7.

assessing the origin of the earlier K groups, when examples dated by association are rare.[1]

Despite the infrequent inclusion of jewellery in male graves of the pagan period, most groups include a number of examples which might be dated, at least approximately, by association in this way. The possibilities of error inherent in this chronological method are counterbalanced to some extent by conclusions assessed from in some cases, a large number of instances. In cases where it has not been possible to recover the details of originally associated funerary deposits, or in those where the spear remains as the sole accompaniment of an otherwise unremarkable grave, merely one of a number, it is possible, with scepticism, to ascribe such a burial to an approximate date on general grounds, in consideration of the otherwise definable chronological limitations of the cemetery, or the period to which the bulk of its graves seem likely to belong. This method of procedure is open tocriticism on the practical grounds that the burial of men with weapons might have continued among a particular community for some years after the deposition of jewellery and other useully dateable objects with the woman had been customarily abandoned. But this supposition, if tenable in some cases, as at

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1. <u>See</u> section III, pp.218-9.

Worthy Park, cannot at the moment be considered universally applicable,[1] and the chronological pattern which emerges from a consideration of each group in these terms remains convincingly consistent. Where the attribution of a piece to any particular group or series has been at all doubtful, it has been omitted entirely from both the distribution maps and any consideration of chronology.

No really close dating is at all possible, nor would it be realistic in view of the very gradual development of spear forms. A further caveat is necessary with regard to the discussion of chronological range of the groups. Just as the apparently sudden appearance of Germanic types of weapons in graves during the later fifth century in this country by no means necessarily implies that the forms themselves had been developed as suddenly, the lack of dateable examples after some time in the seventh century is as likely to be due to the general abandonment of pagan funeral customs during the later part of that century, as to the sudden extinction of any particular type of weapon. Where the numerical decay of a group can be observed to have begun before this time, then it may be reasonably assumed that the latest dateable examples

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1. See section I, p. 4; but in general as at Shudy Camps, Uncleby or Camerton, the deposition of weapons with the dead seems to have been abandoned before the less overtely pagan inclusion of such buckles and trinkets as might have been included merely in the dress of the dead person. (Leeds E.T. (1936), Early Anglo-Saxon Art and Archaeology, cap.6, passim).

were in fact among the last of that type made in this country. But where a group numerically in favour during the seventh century is then apparently cut off from archaeological view, it is probable that their manufacture and use continued for some time subsequent to the last ones being buried. There is no indication that the abandonment of traditional modes of burial was accompanied by any significant change in military conditions which might be expected to affect the manner of weapon construction. On the other hand, such finds as we may claim as "later Anglo-Saxon" are markedly distinct in form from those current during the seventh century, and must surely be the result of modification or of the introduction of new types during the course of the eighth century.

Statistical analysis dependent upon chance survival, has not except in the broadest sense, been shown to be significant. Approximate numerical relationship between the types, however, is best seen in a comparison of the distribution maps, where included. These, it should be observed, are essentially schematic, suffering from inherent difficulties involved in their use. The apparent absence of spears noticed in the regions of Deira and Bernicia, for instance, is due to the poor conditions of

preservation of the goods from the few cemeteries that have been excavated, rather than to a general Northumbrian abhorrence of military weapons. It is probable, that with certain exceptions, most of the groups represented in the East Midlands, remain to be discovered in fresh excavations further north. Just so, the two examples from group C2, from the early Dark Age settlement site at Bantham in Devon, conform admirably with what we know of types generally current in the south at this time. It is difficult to assess the kind or degree of influence of Celtic on Anglo-Saxon weapons, or vice versa, in view of our very incomplete picture of Celtic material remains from this period. There is literary evidence that Celtic warriors were customarily buried with their weapons, but all that remains are a small number of very corroded fragments. One or two useful pieces, however, are known from Dark Age settlement sites at, for instance, Dunadd and Castle Hill in the south-west of Scotland.[1]

Series A, consists of two groups which, unlike subsequent groups discussed, are formally related to each other only in remote continental antecedent forms.[2]

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1. Craw J.H.(1930) Excavations at Dunadd and other sites; PSAS. LXIV, espec. p.117; Smith J. (1919) Excavation of the forts of Castlehill, Aitrock and Coalhill, Argyleshire; PSAS LIII, espec. p.129.
2. See section II, pp.63,79; A typologically overlapping form A1/2 and conforming with Nydam type 3, occurs from Syonsby churchyard. Similarly, the example ascribed to group A2 from Brighton, is a typically narrow for the group.

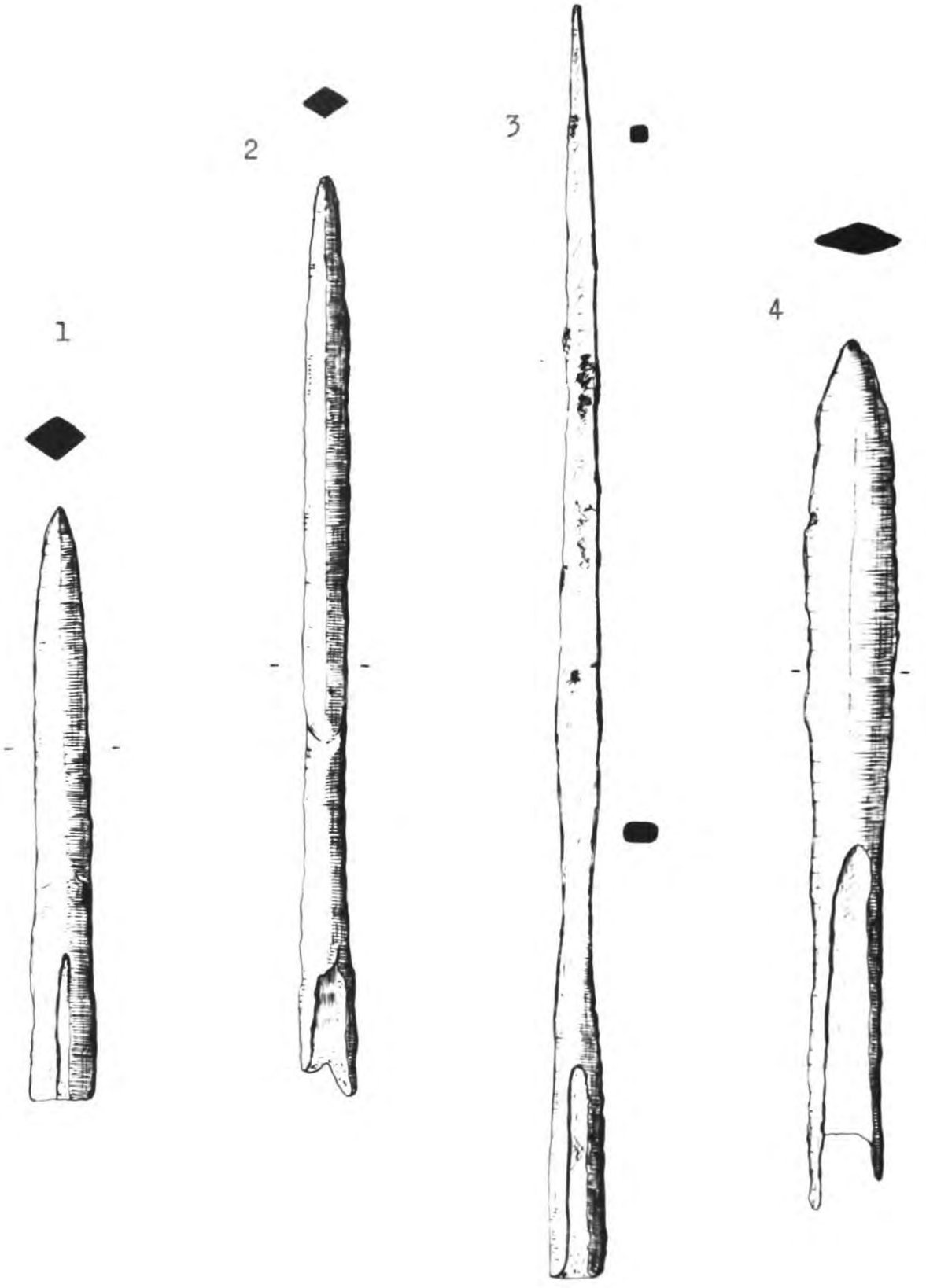

Fig.7. Types of Group A1.
(1) Harwell. (2) Kingston Down gr.173.
(3) Thames (bm 68 9-14 13). (4) Dover B. gr.135.

Immediately derived from Germanic forms of the Roman Iron Age as illustrated at Vimose or Nydam, they are constructed with the emphasis placed on the point rather than the lower blade, and were apparently intended for use with a forward thrust rather than any lateral movement.

Group AI, is best illustrated from two dateable graves at Harwell (fig.7(1)) and Kingston Down (fig.7(2)) - a simple round-socketed spike, quadrangular in section across the "blade" end; the stouter example from Harwell measuring 17.7 cms. in length, and the more slender proportions of that from grave 173 at Kingston Down, a fragmentary 26.3 cms. An unnassociated, but complete piece from the Thames (bm 68 9-14 13) (fig.7(3)) measures rather more at 30.3 cms., while an example from a grave at Winster, now unfortunately lost, is reported to have reached 61.0 cms. One example from Spettisbury has a closed socket, but forms an unassociated find, and with the badly welded piece from Skyrethorne, seems as likely to indicate an earlier Medieval date as a continental Germanic origin. Others, where not either obscured by corrosion or altogether decayed, exhibit close parallel-sided slit-like clefts up the greater part of the tubular socket. Less than a dozen examples can be

ascribed to this group,[1] including two from the Dover B cemetery, graves 114 and 135 (fig.7(4)). These share something of the characteristics of this group in presenting a stout blade on a short round socket with no clear junction dividing them, but on the other hand the blade is distinctly lentoid or lozengiform rather than quadrangular in section, and they would seem rather to overlap with group 16,[2] were it not for their rather short proportions: 18.5 and 25.7 cms. long respectively. This Dover B type is paralleled by an example from grave 174 in seventh century Frankish context at Lavoye (Meuse).[3]

The most obviously derivative piece in form, from Harwell, identical with some of those of the fourth Nydam group save for the narrow slit in the socket, was reportedly associated with: an applied brooch bearing heart motifs between a six pointed star, a small gilt-bronze square-headed brooch, and a small bronze buckle

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1. In the late cemetery at Uncleby, "square irons" similar in appearance to the smaller spear-heads of this group, but tanged instead of socketed, occur in six of the male graves. They were described by the excavator as sharpening implements, but are noticeably absent in the one grave that included a sword, and four others with seaxes, one of which was provided with an ordinary hone instead. Their position in the graves at a point about the waist, however, makes it unlikely that these objects formed a northern varient of this group, (Smith R.A. (1912)) An Anglo-Saxon cemetery at Uncleby, E.R. Yorks; PSA. 2nd S. XXIV pp. 146-158). Tanged varients do occur regionally in, for instance, Finland at this time however.
2. See this section, pp. 201-4.
3. St. Germain-en-Laye Museum.

with an oval loop and rectangular plate; which point together to date some time early in the sixth century. At Winster the associations were with a plain pottery vessel, now apparently lost, and an oval meerschaum buckle loop. On the other hand that from Kingston Down grave 173 was clearly later, even within the context of that cemetery, buried with two small bronze buckles decorated à jour. Despite the relative rarity of this type then, the chronological range of the group as represented in this country probably extends over the whole of the "pagan" period from the time of the Migrations to the end of the seventh century.

The type seems to have disappeared by the middle sixth century or earlier in Scandinavia,[1] but in the continental tradition examples with unsplit sockets are recorded from the important warrior's grave at Morken in the Middle Rhine, dated to about 600 A.D.,[2] and during the sixth and seventh centuries from Frankish cemeteries at Lommersum or Lezeville,[3] and Alamannic graves at Reichenall and Bülach.[4] The earliest types were frequently balustered at Vimose,[5] and this feature with cleanly facetted sockets seems to have survived into

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1. Fett P. (1940 pp.29-30, fig.37. Cf. Shetelig H. (1912) Vestlandske graver fra Jernalderen, p.116, fig.264. This type is not apparently found in eastern Norway after about 500 A.D.
2. Böhner K. (1958) p.444, abb.2(4).
3. Müller C. (1960) Das Fränkische Reihengräberfeld von Lommersum; Bonner Jahrbücher CLX, p.239, abb.11(1); Salin E. (1922) Le Cimetière Barbare de Lezéville, p.111. Cf. another very similar to the Spettisbury piece, from Oyes (Marne) (St. Germaineen-Laye Mus. regs. 68164-72).
4. Chlingensperg-Berg M. von (1890) Das Graberfeld von Reichenall in Oberbayern; gs.153, 309, 324, taf.viii, xxxv; Werner J. (1953) Das Alamanische Gräberfeld von Bulach, gr.18; with both triangular & square sections. 5. See section II, p. 63.

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further Alamannic examples from, for instance, Kerneburg bei Stetten and Murr (Württemberg).[1] From grave 30 in the seventh century Frankish cemetery at Lavoye (Meuse) comes a further example in which junction balustering has been replaced by furrowing, and scribed decoration.[2] Both Alamannic and Frankish forms, however, are very reminiscent of their Roman Iron Age antecedents.

Developed then during the Roman Iron Age, this type of spear as we see it in England, clearly deriving from the simpler kind evolved by the time of the Nydam I deposits, and found amongst the laeti of northern France in the later fourth century at Furfooz,[3] will undoubtably have been introduced into this country as one of the most clearly definable groups of the Migration period; and it is just possible that the Harwell piece might even have been brought in the form of an import at this time. With a parallel, though rather simpler development to its continental counterpart, it is possible that this form survived in small numbers throughout the later period, but it seems more likely in view of the general pattern of usage, that this sort of weapon would have gone into general abeyance from the later seventh century onwards, with a hiatus until the reintroduction of heavier defensive armour and more extensive cavalry of the

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1. Stuttgart Museum; the former unregs, the latter regs.A520.
2. St. Germain-en-Laye Mus. unregs.
3. See section II p. 80, n.1.

later twelfth century requires again the opposition of a penetrating needle like spike. But as it returns then, whether short like that from Clough Castle, or long as at Hen Domen, the form is more distinct, with socket and shank clearly divided from the blade by a constructed shoulder, and each of the quadrangular, or now sometimes triangular faces hollowed in section.[1]

Earlier in the period, Aneirin speaks of the gwyngalch a phedryollt bennawr[2] (white-shafted square-pointed spear-heads) carried by the British warriors riding to Catraeth (? 603 A.D.). The substance of Y Gododin seems to derive from the late sixth or early seventh century, and this reference compares well therefore with just such stout triangular section blades becoming square at the tip found at the Celtic Dark Age site of Dunadd,[3] eminently suited, like the later twelfth century reintroduction to use of the type, as equestrian lances. Certainly, it is with the later development of this group, rather than with the earlier A2 group, with which Dorolf's four sided stout mail-piercing brynþvarar[4] might be more convincingly identified.[5]

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1. Ibid. p. 331.
2. Y Gododin, l.95. Jackson K. (1933) "Notes on Pedryollt Bennawr" Bull.Celtic.Studs. VI pp.313-4, confuses this with the "angon" as described by Baldwin Brown, with a square tip in front of barbs, but the recent authoritative edition of Sir Ifor Williams supports my reading; (1961) Canu Aneirin, p.98, note 95).
3. Two examples, lengths, 9.75, and 9.0f. Craw J.H. (1930) p.117, fig.5 (39-40).
4. Egilssaga Skallagrímssonar, 53 (See p. 331, n.1).
5. Thus Keller, (See p. 20, n.1).

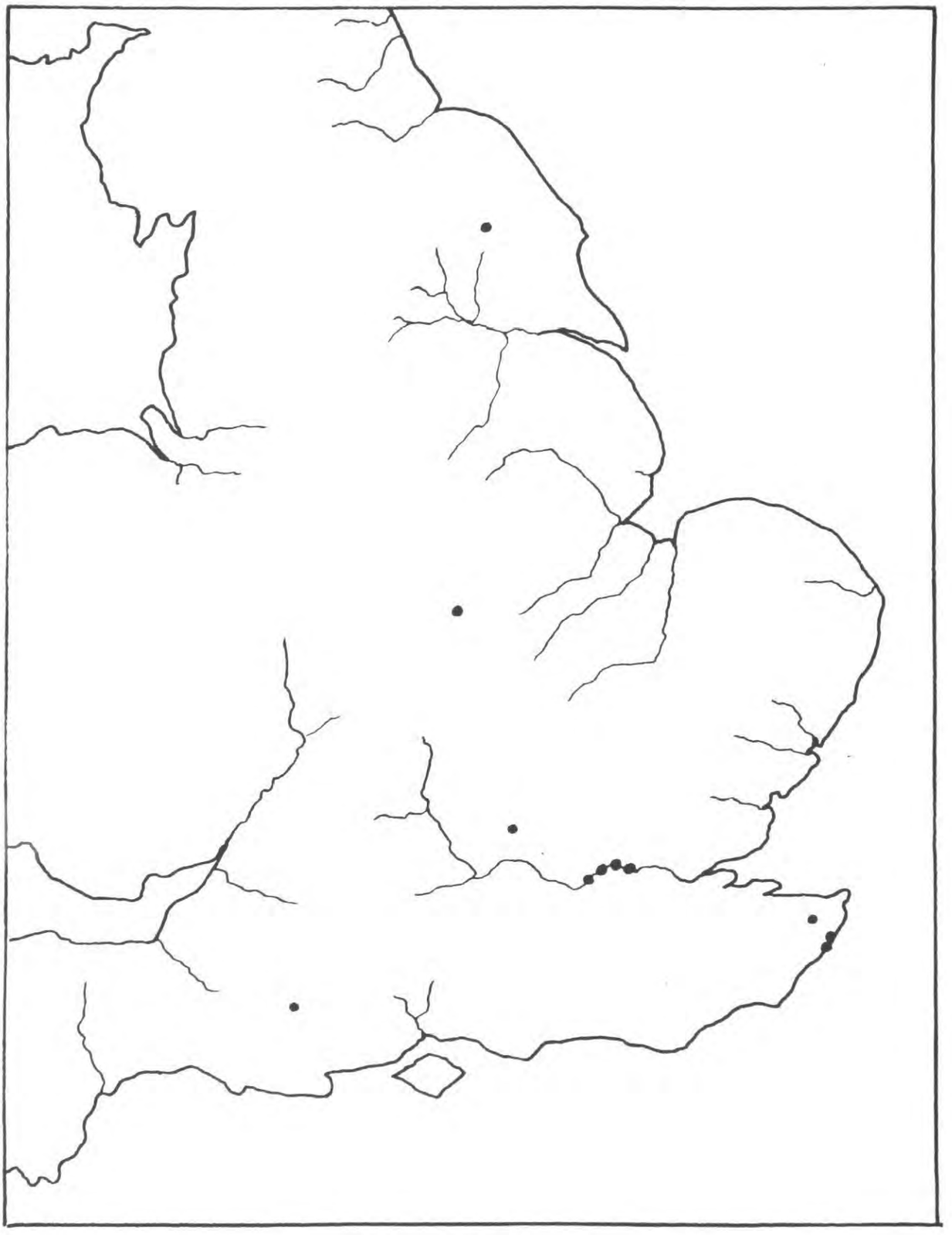
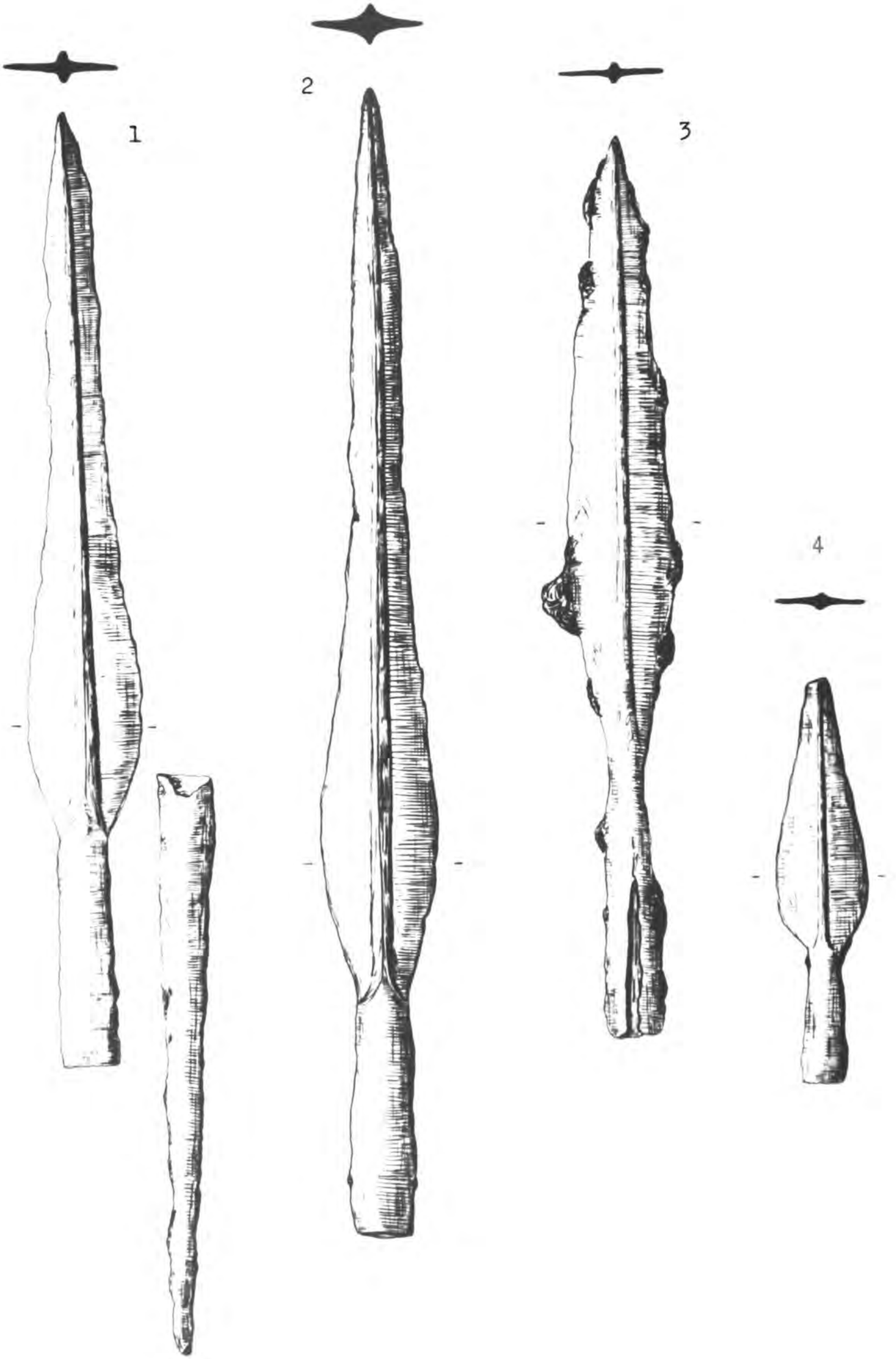


Fig.8. Geographical distribution of group A1.

Fig.9. Types of Group A2.

(1) Guildown gr.56. (2) Fairford (ash 1961 4). (3) Sutton Hoo (bm(51) (4) East Kent (liv(51).


1
2
3
4

The geographical distribution of the small numbers of this group, (fig.8) is not likely to be significant.

Group A2 forms another smallish, and clearly derivative collection of spears, (fig.9); foliiform blades of varying lengths, invariably with the widest part of the blade towards the bottom, and a slight strickening in profile above; a firm midrib throughout the length of the blade emerges from a round closed socket, moderate in length, with a single transverse rivet at the mouth. Differing in small details from this norm are the more regularly leaf-shaped examples from Richborough or Sutton Hoo (5) (fig.9(3). Here the blade's profile omits the usualy strickening, which is in any case an early feature, like the closed socket, which is here replaced by the sort of narrow-slit, but otherwise tubular socket, characteristic of the A1 group. Lengths vary from the largest of the group at Fairford (ash 1961 4) (fig.9(2) measuring 41.1 cms., to the smallest at Colchester (colch. jos. 5) which reaches only 10.2 cms., but the definitive feature of the group lies in the midribbing of the blade, which we have noticed as characteristic of Germanic types during the Roman Iron Age. It has not been possible to distinguish by analysis, however, whether any of these insular finds illustrate the

sort of composite construction, perhaps with a steel mid-rib and softer iron blade pieces, that we find in some of their antecedents,[1] so that the question of whether these might not represent warrior heirlooms from continental times will have to remain in abeyance for the time being.

Of the relatively small numbers of this group, (only some two dozen possible examples are included in all), a few are usefully associated. From Guildown grave 56 comes a particularly good example (fig.9(1), equipped with a lengthy conical ferrule, which was associated with a glass cone beaker of Harden's type Ai which may be ascribed to the later fifth or earliest sixth centuries.[2] A very similar piece from grave 4 at Great Chesterford was found together with a bronze spoon of Roman type, a "finger ring and bracelet of the same metal", a coin of Arcadius (395-408 A.D.), a buckelurne, and a small bronze "needle case" of the early Dunstable type.[3] Probably even earlier in date is the more regularly foliiform piece from the warrior grave at Richborough, which Mrs. Hawkes has recognised as most probably belonging to one of the Germanic defenders of the Saxon Shore fort,[4] and which was associated with a pewter bowl of late provincial Roman type, and

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1. See section IV, p.398.
2. Harden D.B. (1956). ed. Dark Age Britain. pp.140, 159.
3. Chadwick S.E. (1959) pp.35-6.
4. Hawkes S.C. (1962) p.17.

a shield boss with a hemispherical profile ending in a point. Another more fragmentary but broader example comes from the same site, found not in a grave, but merely in the upper occupation levels of the fort. Another example, almost identical with the first Richborough piece, with a closed folded socket, and probably equally early, comes from a grave at Brighton, where it was associated with a sword and a small urn, both of which are now apparently lost. More spectacular, albeit fragmentary, is the unfortunately unassociated piece from Basingstoke, apparently dug from a grave, which is elaborately inlaid on the blade and upper socket with tricolour wires, in a manner more indicative of continental origins than insular workmanship (fig. 106(1)[1] and in all probability representing an import during the earliest part of the migrations. An example from Fairford however, found with another spear of group F2 and a shield boss of probably sixth century type, seems probably to have been deposited at a rather later date. Later still must be dated the admittedly rather atypical example from Sutton Hoo. Slight midribbing is visible in the blade from grave 8 at Holborough which would provide a much more exact parallel to this, both in style and date, being found with a low cone shield boss and an oval-looped bronze buckle with a rectangular folded plate.

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1. See section IV, p. 427.

Apart from a single possible later example from east Kent[1] (liv 51) (fig.9(4), each of the remaining pieces ascribable to this group seem to come from relatively early contexts. An example from Guildown grave 223 is identical with that from grave 56 already described, although missing the tip and with no recorded ferrule. Most of the grave goods recovered from this cemetery probably belong to the later fifth or earlier sixth century, as does that from Croydon, whence comes a similar blade (bm 95 3-13 17). Similarly the small piece from Colchester, although with no recorded associations, in all likelihood comes from one of the earlyish graves reported from this neighbourhood.

The continental counterpart to this group has a long history originating in Hallstatt times, but derives more immediately from the first Nydam I group, as in earliest migration period contexts at Furfooz, Molenbeek-St.Jean, Galgenberg or Krummensee-Pötterberg.[2] According to Fett, this form rarely sruvives the middle of the fifth century in Norway,[3] where its place is perhaps taken by

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1. The Faussett-Mayer collection in Liverpool Mseum is made up almost entirely of material from the late group of cemeteries described in Inventorium Sepulchrale. Most of this material might therefore, as a matter of speculation, be ascribed to a late date.
2. See section II, p.78 ; Roeder F. (1933) Neue Fund auf Kontinental-sächsischen friedhöfen der Völkerwanderungszeit; Anglia LVII, p.321 ff., taf. xiii(2); Genrich A.(1954) gr.47, taf. 20(C1).
3. Fett P. (1940) pp.26-7, fig.30.

the Vendel type. Further south, however, this form apparently survives commonly in all regions. The closed socket is maintained, although later in the sixth and seventh centuries the firm midrib beomes rounder, lower, and has a tendency to fall off gradually towards the middle of the blade, disappearing before the tip. Good examples occur with traditional strickening in the profile above the widest part of the blade, surviving into the seventh century from graves at, for instance, Oyes (Marne), Inzing (Tyrol) or Stuttgart-Cannstadt grave 5.[1] The majority, however, like that from the Richborough grave, conform more nearly with the second Nydam I group, in presenting a more regularly foliiform profile with the widest part towards the middle of the blade and no strickening. Of these, usefully associated examples from the seventh century occur at: Valsgarde grave 6 (Uppland), Morken or Wölfersheim (Hessen), or more extensively further south from Alamannic graves at Hailfingeh or Sindelfingen (Württemberg).[2]

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1. St. Germain-en-Laye Mus. regs.68164-72 (and cf. another from Mont-Berny (Oise) regs. 28288); Berlin Mus. regs.II c.3718; Stuttgart Mus. regs. F 61/30.
2. Ardwisson G. (1942) Valsgarde VI, p.52, taf.13(968), ascribed by Lindqvist S. (1936) p.320, to about 700A.D.; Böhner K. (1958[2]) p.444 abb.8(3); Behrens G. (1937) Fränkische Graber des 7 Jarhunderts aus Hessen; Germania XXI, pp.267-72, abb. 6(3); Stoll H. (1939) Die Alamannengräber von Hailfingen in Württemberg, pp.76-7, taf.32 (32-3); Veek W. (1931) Die Alamannen in Württemburg, pp.206-9, taf.71B(1-2), and cf. pp.186, 293, taf.73B(5,7.)

Each of the more traditionally formed first Nydam I variants mentioned exhibits a developed form of the etched lunate markings so characteristic of this group during the Roman Iron Age. With the exception of one rather doubtful example,[1] the traditional mode of extensive punched and engraved decoration has now been replaced by the rather more restrained form of bands in two or three parallel scribed lines, delimiting formal lunate areas either side of the midrib within the lower half of the blade, the bands being filled with simple punched or etched geometric patterning. This mode of decoration is taken over during the course of the sixth century into the more regular foliiform blade, to emerge with the later part of the sixth or earlier seventh century as the well known "Vendel type",[2] found in graves I, XI and XIV at Vendel itself,[3] where the ornament is severely restricted to a small area round an almost vestigial midrib which falls rapidly to about a fifth or less of the length of the blade. The series is really misnamed since the re-development of this

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1. Behrens ascribes a single unassociated example to the Merovingian period, but without comment: Behrens G. (1947) Merowingerzeit, p.42, abb.90(11).
2. Olsen P. (1958) Spjutspetar av typ Vendel XIV; Tor IV, pp.87-97.
3. Stolpe H. and Arne T.J. (1912) Graffältet vid Vendel, pp. 17, 43, 55, pl.x(8), xxviii(6), and xliii(4)

type subsequent to the migrations period seems to have been essentially southern Germanic, and probably Alamannic, in origin.[1] Its development seems to have been concurrent with that of the large wrythen bronze rivet-collars which are a common feature of this kind of spear on the continent. They are found on the example from Vendel grave XIV, and are figured on the helmet plates from the same grave (fig.109(3) but they are found much earlier further south, as at Würmlingen or Stammheim (Württemburg)[2] either side of cleft sockets which can hardly be later than the first half of the sixth century; and occur much more frequently, and assume more elaborate varients.[3]

The majority of dateable English finds of group A2 seem to be early, deriving directly from the simple first Nydam I group, although none are sufficiently well preserved for it to be possible to detect any engraved decoration there may have originally been. In view of the general scarcity of wepons which display the high standard of craftsmanship required for this form, it may be supposed that the more classic examples of the group like those from Guildown or Basingstoke, represent either direct imports at the time

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1. Gjessing G. (1934) Studier in Norske Merovingertid, pp.49-50.
2. The former very fragmentary, but with bronze inlay on the socket near the junction; the latter radially marked round collars on a slender foliiform blade of early type, with a lengthy split socket; Both Stuttgart Mus. unregs.
3. Eg. from Charnay (Saône et Loire)(St. Germain-en-Laye regs. 34690) or Köln-Mungersdorf gr.27: Fremersdorf F. (1955) Das Frankische Reihengräberfeld Köln-Mungersdorf, taf.7 (27:10).

of the migrations, or at a single remove, the work of a skilfull smith working amongst the first generations of settlers. The two seventh century pieces, from Sutton Hoo and Holborough, present profiles which are atypical within the group, and are perhaps best compared with later continental forms of a comparable date, like those from Wölfersheim or Charnay (Saône et Loire).[1] Continental forms however are universally provided with closed welded sockets, whereas in these two late English examples cleft sockets betray insular workmanship. One other piece from Holborough is made with an inlaid composite blade,[2] while a weapon-smith skilfull enough to introduce midribbing of this kind would certainly not be out of place at the court of an East Anglian king, if rare enough in the country as a whole. Reasons for the apparent hiatus between the early derivative group, and these two later pieces must remain a matter for speculation. The cleft sockets of these late pieces seems to preclude the suggestion that they represent the work of a particular smith brought from abroad to work in the south-east of the country. In eastern Scandinavia this type apparently survives into

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1. Behrens G. (1937) abb.6(3); St. Germain-en-Laye, regs. 34916.
2. From grave 7, see this section, p. 145.

Fig.10. Geographical distribution of group A2.

the beginning of the eighth century,[1] but in England, apart from these two late examples, there is no evidence that this group survived the earliest period of settlement.

The geographical distribution of this group (fig.10) might be considered to present a distinctly "early" pattern, scattered at points in East Kent, the middle and upper Thames and one or two in the east Midlands. If we include a further possible example from Eastburn (Yorkshire)[2] this distribution might be usefully compared with Mrs. Hawkes's map of the earliest kerbschnitt metalwork of the later fourth and fifth century settlement.[3]

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1. Eg. from Valsgarde grave 6, dated to about 700 A.D. by Lindqvist S. (1936), Vendelstilens silveralder; Rig 1936, p.320. An unornamented blade from Multapakenniemi (Finland) is dated to the early eighth century by Salmo H. (1938) pp.198-202, taf. xxxiii(2), while another varient from Gotland may be later still in the same century: Arbman H. (1937) Schweden und das Karolingische Reich, p.119, taf.36(2). An example of the wrythen-collared bronze rivet is found on the socket of a corroded foliiform blade from a grave at Pfullingen (Württemburg) dated by a silver mounted sugar-loaf shield boss to the beginning of the eighth century, (Stuttgart Museum, unregs,)
2. Now unfortunately missing from the Mortimer collection at Hull, but described by the excavator of the Anglo-Saxon cemetery, to which it seems much more likely to have belonged than to the Iron Age the author ascribes it.
3. Hawkes S.C. (1962), fig.4.

Series B, is made up of a number of relatively numerous groups, characterised by an angular blade with a straight-sided profile, usually lozengiform in section. Individual pieces vary overall in size and proportions within each group, but the blade always represents a larger part of the whole, and often markedly so, than the socket and junction lengths together. Often incorrectly described as "lozenge-shaped", the blade in fact regularly exhibits a basal angle well in the lower part of the blade near the junction.

The origins of the angular profiled blades in general, that is series B together with the less extensive subsidiary straight-sided series C and D, is difficult to determine. Examples had occured only sporadically, scattered sparsely throughout north and central Europe during earlier Iron Age times, almost as if at the whim of an individual smith,[1] although they seemed to occur more regularly in Scandinavia from the time of the earliest Hallstatt pieces from Tidavad through to the first half of the fifth century at Barshalder-shed (Gotland).[2] Critically dated material is rare, but it seems probable that the more regular introduction of this sort of profile into the repertoire of western Europe occured only with the general south-western expansion of Germanic peoples at the time of the earliest phase of migrations. Examples are thus seen earliest at Furfooz and Vermand.[3] Later, during Merovingian times, the

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1. See section II, passim. 2. Ibid, and Stockholm Museum regs. 19535. 3. See section II, p. 82.

general development of these continental angular profiles is clearly divergent from that which resulted in the insular series, and no strictly comparable groups emerge, although it must be assumed that the earlier Anglo-Saxon examples had similar typological origins with examples like that from Quelkhorn II,[1] from the migration period of the continental homelands.

Broadly speaking, two major continental groups emerge during the course of the sixth and seventh centuries: both much finer overall, more slender and lightly made than those from English smithies. A small lozenge-bladed long-shanked closed-socketed weapon, comparable with some examples in insular groups C3 and 4, occurs extensively throughout Frankish and Alamannic regions from about the middle of the sixth century onwards,[2] but not to any extent in Scandinavia. A second group, with proportions between blade and facetted socket more equal, or with a rather longer blade, the angle of which is normally high towards the middle, and often in the south, engraved with a pattern of straight lines, is found already by the fifth century, and comes into equal favour by the seventh century over

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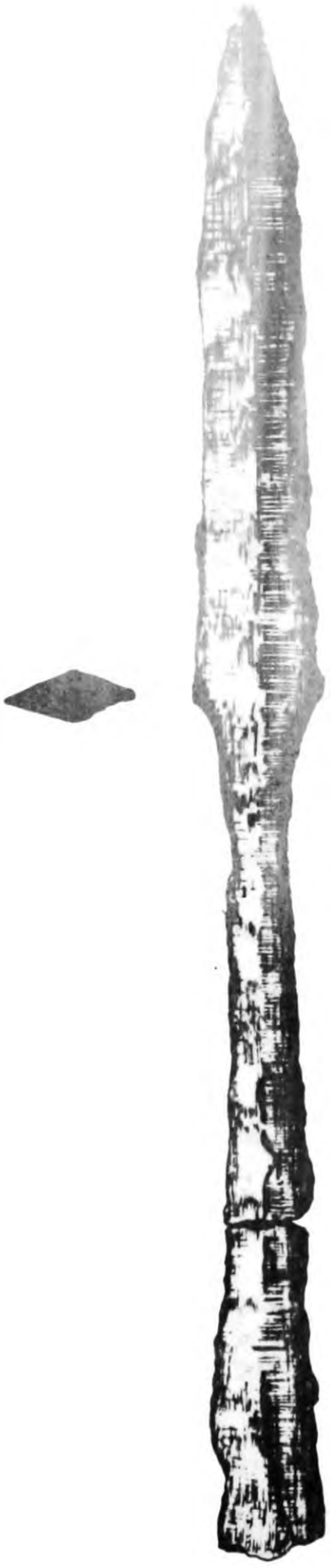
1. See section II, p. 82.
2. See this section, p. 140. The occasional earlier example does of course occur, like that from the fifth or earlier sixth century at Sindelfigen: Veek W. (1931) pp.206-9, taf.71B(5).



Spear-head from Driffield grave 5.

the same area.[1] Rare examples are found early in Finland,[2] but the form is not otherwise apparently in regular use in Scandinavia at this time.

A lesser group presents the distinctive form of a narrow and often almost parallel sided blade, with the angle emphatically basal and inwardly curved, flaring from the junction. The blade is often decorated with vertical scribed lines, and the junction frequently has flat balustering or lines of fullering.[4] They are stoutly designed, and have every appearance of a later horseman's lance-head. On the continent this is characteristically Alamannic in distribution, and more or less confined to the seventh century, although antecedent forms do occur.[3] But a remarkable parallel occurs from grave 5 at Driffield, unassociated save for the sistinction of being equipped with a ferrule. This grave might be dated within the general chronological limits of the cemetery at any time from the later fifth century to the second half of the sixth, and as such the spear, with corroded, but clearly

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1. Böhner K. (1958) taf.29(3), 30(1); Stoll H. (1939), pp.46, taf.32(16); Veek W. (1931), pp.174,241 etc. taf. 72A(1), 73A, or from the second half of the sixth or seventh century cemetery at Oyes (Marne), St. Germain-en-Laye Mus. regs.68164-72.
2. Hackman A. (1905) pp.269-70.
3. A possible example from Heidenheim is dated to the earlier sixth century: Veek W. (1931) p.173, taf.72B(5). It occurs in a Frankish grave of the seventh century at Hohenfels; Böhner K. (1958) p.42, taf.30(4).
4. Stoll H. (1939) pp. 50, 74-7, taf.32(2-3, 36-8).

closed socket, seems likely to represent a curious example of an imported form, although whether early or late is impossible to determine.[1] Apart from these three distinctive groups, occasional examples of straight sided angular profiled blades on shortish sockets, appear sporadically throughout Europe, (although again more rarely in Scadinavia), from the fourth to the seventh centuries, but apparently falling into no definable groups that might reasonably be expected to have influenced the development of insular varieties.[2] No clear pattern of angular varieties at the time of the migrations or during the earlier Merovingian period is discernable in the face of present lack of material from critical areas, but it seems probable, in light of subsequent developments in the continental series, that straight-sided angular profiles represent a southern rather than a "norther" development latterly.

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1. The singular occurence of an early Alamannic brooch from the nearby cemetery at Londesborough (noticed: Swanton M. (1965) An Anglican Cemetery at Londesborough in East Yorkshire; YAJ, XLI , p.275, fig.3(12)), gives rise to speculation about the settlement of Alamanni under Fraomar somewhere in Britain, which took place some time late in the fourth century: (Ammianus Marcellinus, Historiae, XXIX 4). A further paper is proposed to elaborate this point.
2. Böhner K. (1958). p.26 taf.29(6); Guyan W.U. (1958) Das Alamanische Gräberfeld von Beggingen-Löbern. pp.25, 27-8, taf.2-5; Werner J. (1953) Das Alamannische Gräberfeld von Bülach. pp.86, 102; Hackman A. (1905) p.269, taf.20(3). Two examples comparable with our group B2, but with closed sockets, come from an iron worker's hoard near Tutlingen, Württemberg, dated to the fourth century by Museum authorities, but possibly somewhat later. Stuttgart Museum regs. A2475.

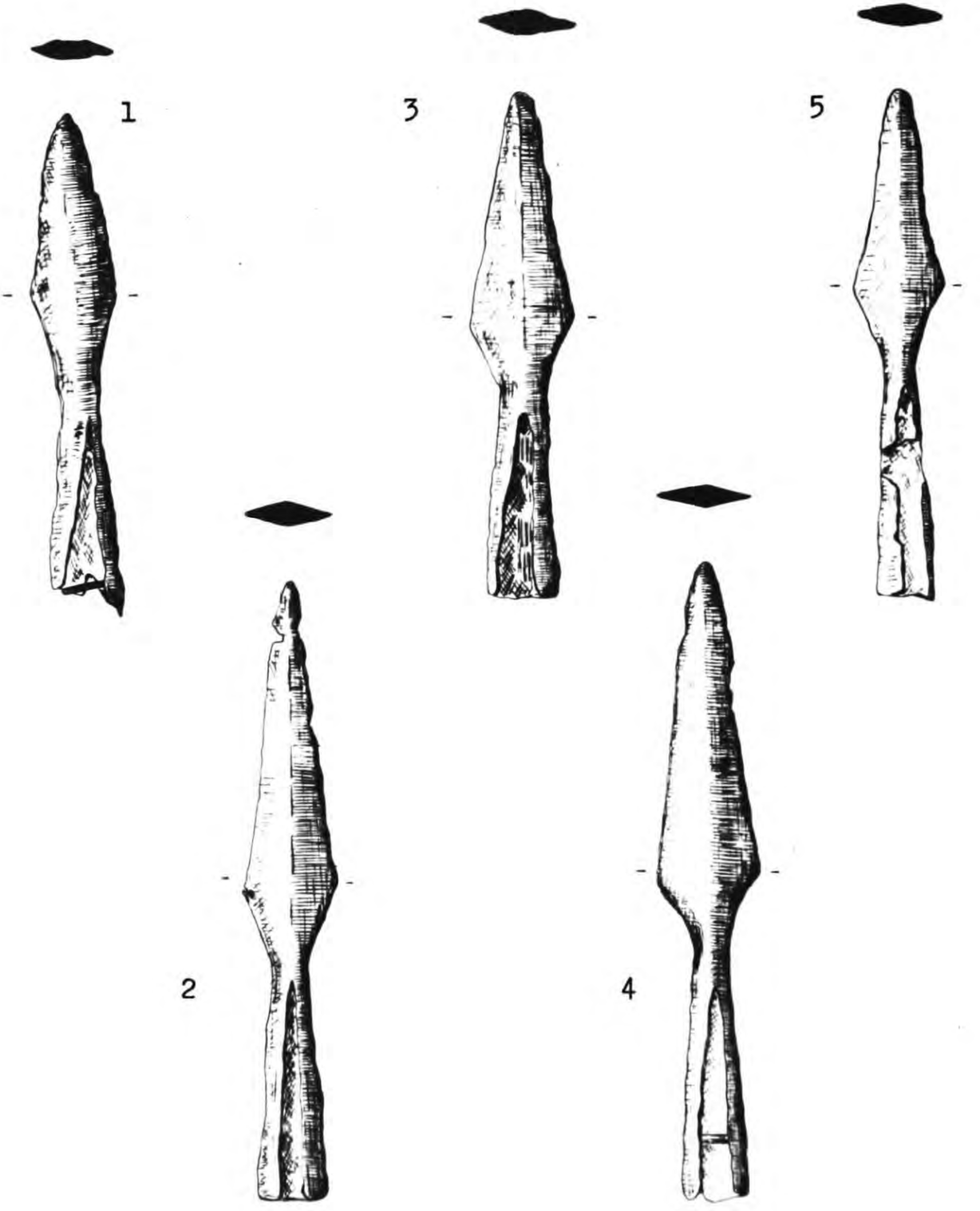

Fig.12. Types of Group B1.

(1) Fornham St. Martin (2). (2) Droxford (bm 1902 7-22 109). (3) Long Wittenham gr.93. (4) Long Wittenham gr.112. (5) Luton (lut 30,41).

Group B1, (fig.12); the simplest and smallest of all the angular profiled forms, from about 13 to 19 cms. in length, with the lozengiform section blade part rather longer in proportion to the socket; and little or no junction, with a narrow triangular cleft running up the whole length of the socket. The blade angle usually makes about 150° but becomes more or less obtuse according to the width of the blade at the angle, which is invariably basal, springing directly from the junction. The greatest width of the blade, naturally, as in all the B series, is at the point of the angle.

Usefully associated examples from this group come from graves at: Aylesbury, buried with a cone beaker festooned in white belonging to Harden's type (c) and ascribably to the later fifth or early sixth century;[1] and grave 93 at Long Wittenham (fig.12(3) where it was found together with a Frankish sheet bronze carinated bowl, with triangualr lugs pierced with key-hole openings, and the well-known stoup with embossed Christian symbols and scenes. A similar sheet bronze bowl seems to have been found with an example from Fornham St. Martin grave 2 (fig.12(1) which was also associated with a shield boss probably to be placed some time in the sixth century. A similar boss was found together with a bronze stirrup with the example from a weapon grave at Sherrington B.

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1. Harden D.B. (1956) pp.140, 160, ascribed to Dinton.

Fig.13. Geographical distribution of group B1.

Three examples from Luton (lut. 104,33; 30.41; 31.41) (fig.12(5) might be placed within the general chronological context of that cemetery in the latest fifth or first part of the sixth century, and the context of most other examples of the group seem probably to be confined to some time in the sixth century.[1] No examples occur which may be specifically placed either very early or late, and although in all probability beginning early, this group seems to find favour only during the sixth century, and is apparently replaced by other forms before its end.

The geographical distribution of this group (fig.13), is similarly contained, the bulk being found in cemeteries in the East Midlands and the upper Thames basin with outlying groups in Warwickshire and Wiltshire, and further south, at Droxford. Significantly absent, or at the most sparse, considering the relatively large numbers of this group, is distribution either in the "Jutish south-east" or in Anglian Northumbria. This sixth century Wash/Upper Thames distribution of axis, which is repeated for certain other groups, is usefully to be compared with

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1. For instance, from Alveston gr. 84 and (strat(3 and 4); and unusually small example from Brighthampton gr.3; Brixworth (north d.263); Droxford (bm 1902 7-22 109, 110 and 111) (fig.12(2); Duston (north d.388 1955-6); Linton Heath gs. 66 and 102; Little Wilbraham(camb 48 1635 and 1640(5); Long Wittenham gr. 112 (fig.12(4); and Sleaford (bm 83 4-1 579). An example from Laceby (linc 99 54) may well come from late in the sixth or earliest seventh century; while one from Kempston (bm 91 6-24 99) may be ascribed to a time either early or late in the context of that cemetery.

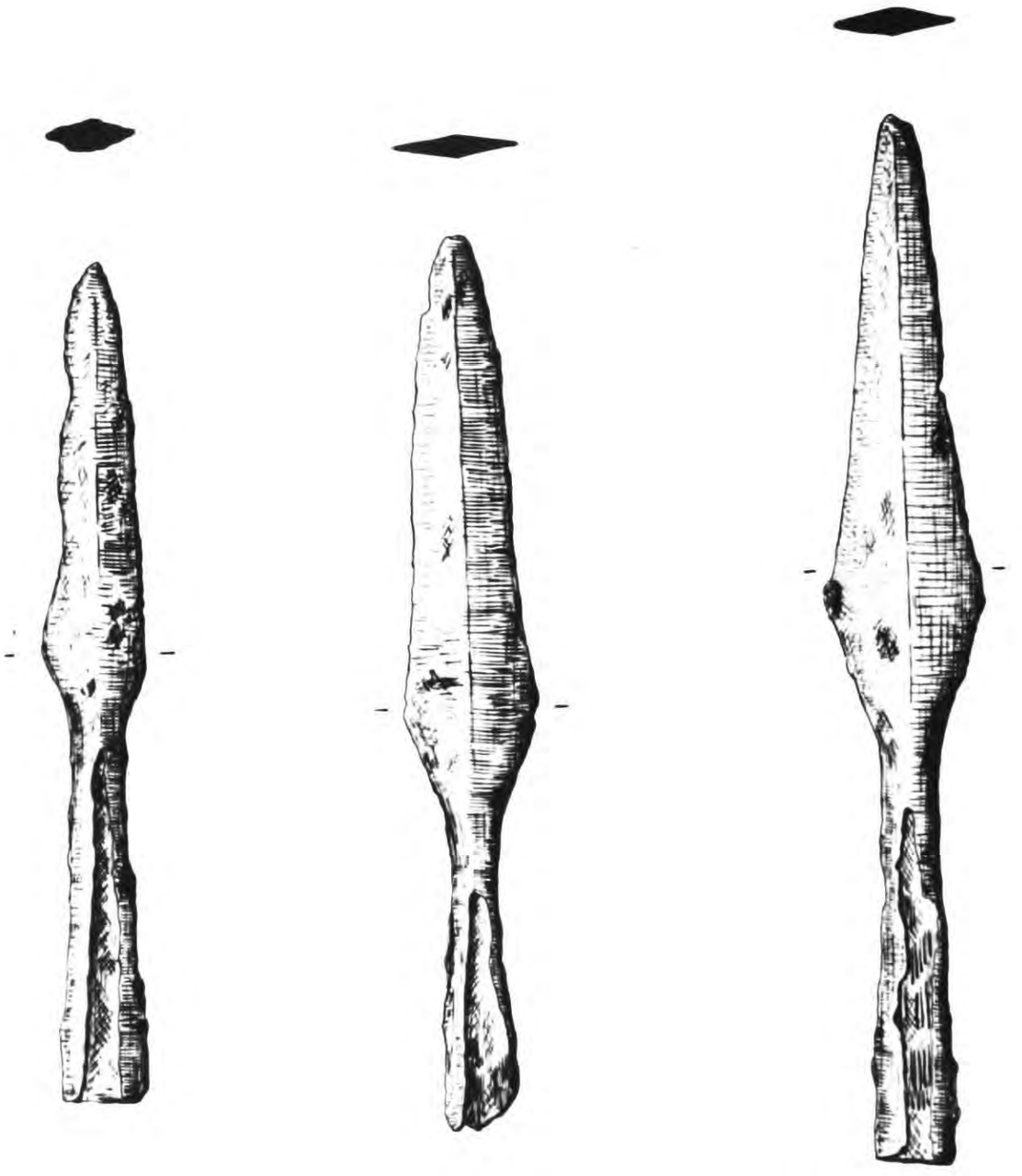

Fig.14. Types of Group B2.

(1) Long Wittenham gr.106.
(2) Grantham (gran AS 14).
(3) North Newton.

Leeds' supposition of a similar axis from the Nene to the Berkshire downs along which Saxon groups moved or were pushed by Angles from further north during the course of the sixth century.[1] With the caveats earlier enjoined[2] about the use of distribution maps in an exclusive or negative manner, however, it is perhaps possible to speculatively describe this group as basically "Saxon".

Rather curiously, this group accounts for two of the small class of tanged Anglo-Saxon spears: those from Linton Heath grave 66 and Laceby.[3]

Group B2 (fig.14), forms a class just about as numerous as that of B1, and shares many of the formal characteristics of that group; with more or less the same proportions overall save that the blade is now somewhat longer than before, and the whole weapon a stage larger, ranging from about 20 to 25 cms. in length for the most part, with the occasional example rather larger like those from Woodston (pet L553) and Nether Wallop, measuring 31.2 and 35.1 cms. respectively.

Relatively well dated pieces are those from Long

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1. A thesis emphasised especially by Leeds E.T. (1913) Archaeology of the Anglo-Saxon Settlements, pp.51-3; (1926) The West Saxon Invasion and the Icknield Way; History N.S. X, pp.97-109; (1933) The early Saxon penetration of the Upper Thames area; Ants. J. XIII, pp.229-51; (1945) pp.79-83.
2. See section III, p.100.
3. See section IV, pp. 391-2.

Wittenham grave 106 (fig.14(1), which was associated with a Frankish sheet bronze bowl similar to the one already described from grave 93, and another from North Newton (fig.14(3) found with a low cone shield boss, both of which may probably be placed some time towards the end of the sixth century. A larger and rather atypical example from Bungay grave 1 was found with an oval buckle-loop, in a double grave the female of which was buried with a silver wire slip ring of the type generally dated to the later sixth or seventh century.[1] Examples from Alfriston (tor 924 60.3), Highdown (worth(2), or Luton grave 21b, may perhaps be ascribed to the relatively early contexts of these cemeteries but the majority of others are probably to be grouped in the sixth century,[2] with one or two from the seventh.[3] This second group the, while larger than the first in physical size, emerges in the same manner probably early in the sixth century, and continuing in increasing favour throughout that century, clearly survives, even largerin size into the next.

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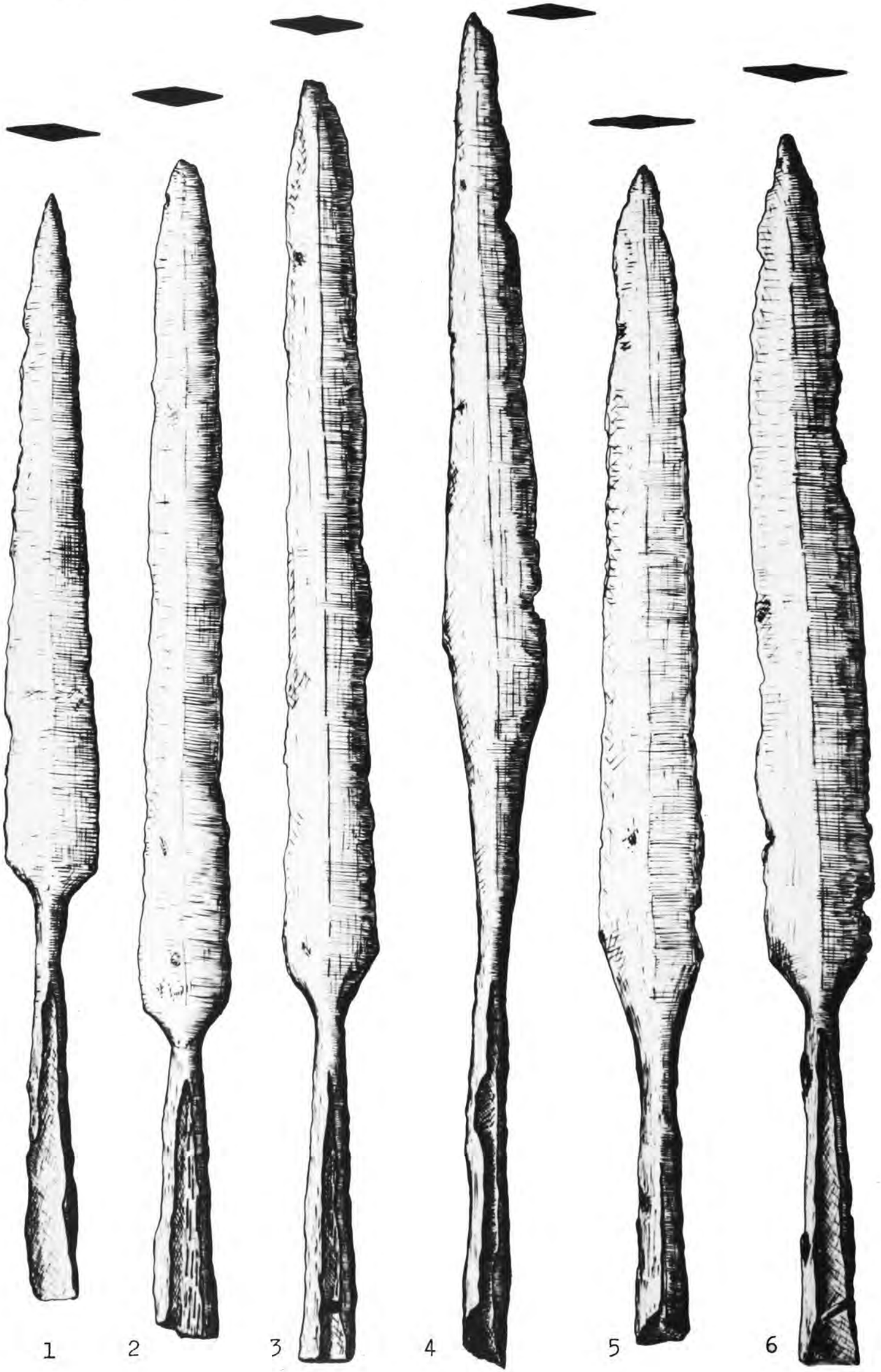
1. Eg. Ozanne A. (1964) The Peak Dwellers; Med. Arch. VI-VII, p.29
2. For instance, from: Abingdon (ash(2); Bidford (strat.(6 and 17); Brixworth (north d 276); Droxford (bm 1902 7-22 145); Duston (north d.379, 389 and 398) 1955-6); Leicester (leic 47 1940); Market Overton (oak(1); Sleaford (bm 83 4-1 581); and Woodston (pet L553).
3. Eg. Aston Tirrold (ash 887 2552); Farthingdown (guild S699); and Snell's Corner grave S12.

Fig.15. Geographical distribution of group B2.

Fig.16. Types of Group B3.

(1) Prittlewell (bm 92 11-4 16).
(2) Barham Down (liv 6296).
(3) Barham Down (liv 6298).
(4) Farthingdown (ash 1885 144).
(5) Kempston (bm 91 6-24 82).
(6) Ruskington (gran 84.1).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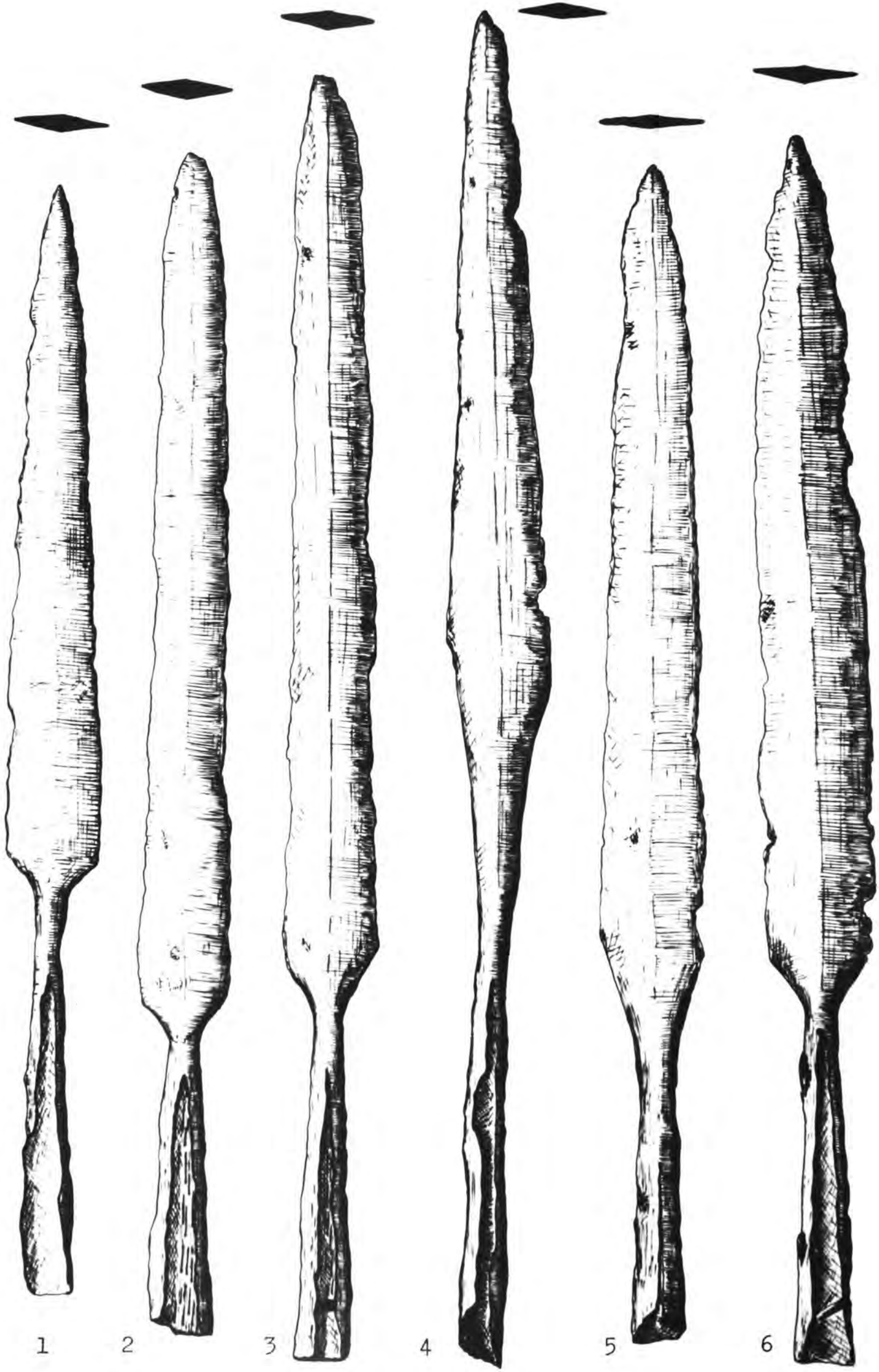
The geographical distribution of this group (fig.15) is almost identical with that of the former, and although rather thinner in density presents the same scatter from the Wash to the Upper Thames with one or two in the west Midlands, Hampshire, and this time on the Sussex coast. As before, it seems that the "Jutish south-east" like the Anglian north, is to be excluded.

Group B3, (fig.16) is made up of a much more numerous body of spears than in the previous two groups, entirely distinct in form, although overlapping to some extent with examples in groups B4 and 5 subsequently discussed. A sophisticated tapering sword-shaped blade, long and narrow with normally a distinct basal angle, it is usually longer in proportion to the socket, although not infrequently found on relatively lengthy sockets, which are occasionally closed. In essence a more slender version of group B4, and although not usually so extravagantly bulky, these are still long, averaging from 35 to 45 cms. in length, with the occasional example something over 50 cms. like those from Duston (north d.386 19556) or Droxford (bm 1902 7-22 143). Like group B4, in reality nothing more than a subsidiary group of this, group B3 is to be placed typologically in the line of development into the later O and S series.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In view of the relative frequency of this class of spears, usefully associated examples are rare, but tend to indicate together, a rather later date than previous groups. That from grave 28 at Gilton, not now identifiable, was deposited with a bronze bound bucket which might belong to any time in the sixth or earlier seventh century, while that from grave 24 at Worthy Park was buried with a half carinated shield boss which seems more likely to belong to the later half of the sixth century than the earlier. More certainly ascribable to the seventh century is the example from grave 156 at Sarre, which was found with a short sword and a red earthenware rouletted Frankish bottle-vase; while examples from Holborough grave 3 and Perham Down were both found with low cone shield bosses. A rather fragmentary and atypical but clearly classifiable piece comes from a grave at Wrotham (bm 1927 5-12 4) together with a simple garnet disc brooch and a flat gold pendant. Also likely to be late in date is the example from Eastry in Huddersfield Museum, decorated with "Vendel-Style" engraved markings.[1]

Only four out of a very large number come from a general context which might be considered at all early,: from cemeteries at Alfriston (grave 3), Croydon (bm 95 3-13 18 and 20) and Northfleet (grav (3). The greatest

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1. See section IV, p.425.

Fig.17. Geographical distribution of group B3.

bulk of the group are probably to be ascribed more fully to the sixth century,[1] with even more probably from the seventh century.[2]

The chronological range of this group, then, seems to cover the whole of the "pagan" period, but being rather scanty in the earlier part, and only coming into favour in the later sixth or seventh centuries. In all probability this group continues strongly, surviving the abandonment of pagan funeral customs, to become modified into the later Anglo-Saxon groups of series O and S, although this must remain typological speculation[3] until dated examples of such continuity can be shown.

The geographical distribution of this group (fig.17), is markedly different from that of former groups B1 and 2. The largest concentrations feature notably in the east of Kent, but also elsewhere within the "Jutish south-east": Surrey, Prittlewell and Ipswich, for instance; with a

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1. For instance: Baginton (cov(2) and 1717); Bekesbourne (cant 7593); Bifrons (maid 872-3 and 891); Bishopstone (ayl 5 80); Brixworth (north d.277) Brooke (bm 70 11-5 28); Chessel Down (bm 69 10-11 23); Droxford (bm 1902 7-22 143); Duston (north d.378 and 386 1955-6); Folkestone gr.18 and (folk(4); Howeletts (bm(1 and 3); Kempston (bm 91 6-24 81) and 82) (fig.16(5); Lovedon Hill gr.3; Market Overton (oak(8); Ruskington (gran 84(1) (fig.16(6); Sleaford (bm 83 4-1 576 and linc (7,8 and 10); Worthy Park gr.94: Leighton Buzzard I gr.5.
2. Eg. from: Aylesford graves (3 and 6); Barham Down (liv 6296 and 6298)(fig.16(2-3); Dover B gs. 10, 71 and E; Farthingdown (ash 1885 144); Faversham (bm 979 70 and (4); Ipswich (ips (9,19,26,28,29 and 39); Prittlewell gr.3 and (south 159 36 and 425 2) and (bm 92 11-4 16). There are also a rather fragmentary number from Sarre grave 153 and (bm 93 6-1 217) and (maid 878, 895, 906 (19 and 23). Inaddition, six pieces are included in Faussett's east Kent collection:(liv(13,19,23,26,27 & 59)
3. See this section, p. 270 etc.

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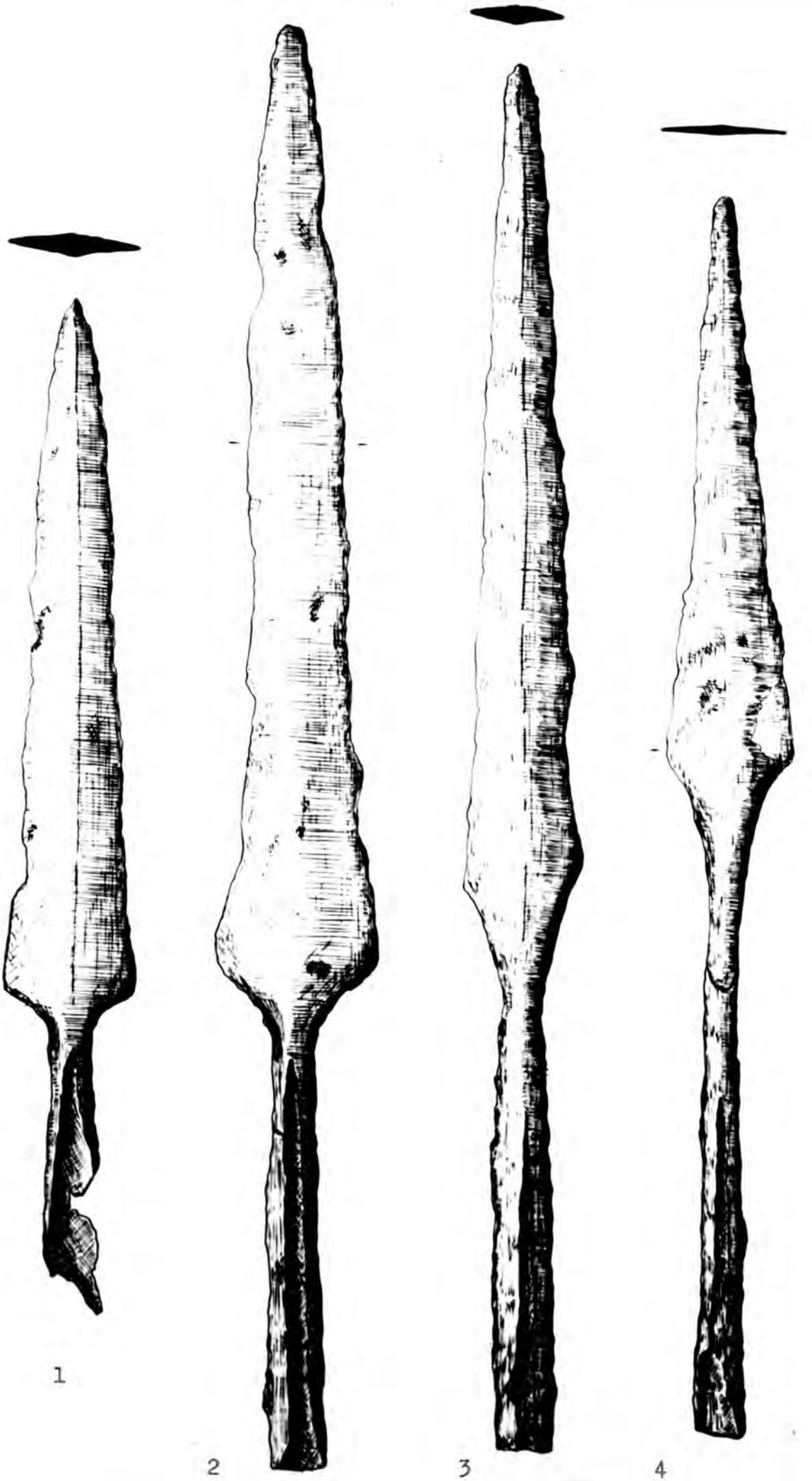
3. See this section, p. 270 etc.

Fig.18. Types of Group B4.
(1) Colchester (colch pc.1508).
(2) Driffield (yk 412 47).
(3) East Kent (liv(42). (4) Barham Down (liv 6315).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single example remaining from Chessel Down. A small group occurs in the west Midlands, but the rest form a mere scatter throughout the East Midlands, through Sleaford and through the East Yorkshire Wolds at Driffield and Tollerton. In view of the relative frequency of this group, numbers in the Upper Thames basin are noteably few.

Group B4, (fig.18); is much smaller in numbers than any of the B series considered hitherto, and naturally so perhaps, forming what must have represented a relatively expensive weapon, using a large amount of material. In essence, it forms a physical development of the previous group, with all of its features somewhat exaggerated. Long, from 37 to 55 cms., and proportionally broader, the basal angle appears to spring even more directly from a slender socket, with a junction frequently inwardly curved, which merely serves to enhance this effect. The angle is thus usually less obtuse than on most angular-profiled spears, although occasional examples do occur where a smoother junction between blade and socket presents a more familiar sort of angle (fig.18(3). It is here that this group tends to overlap with the former, with the width of the blade at the angle rather less exaggerated than normally in this group, although classifiable on other elements of profile.

Associated examples include that from a grave at Colchester found together with a low-cone shield boss, while a similar shield boss was found with that from grave 25 at Prittlewell, together with an oval iron buckle loop and tongue inlaid with transverse silver wires.[1] The example from Dover B grave 56 was associated with a belt suite made up of a triangular-plated three-studded buckle, and a rectangular studded mount; while that from Gilton grave 1 was buried with a simple rectangular iron buckle loop. Apart from a single example from the probably early chronological context of the cemetery at Croydon (bm 95 3-13 19), and a small number which seem clearly to belong with their cemeteries to some time in the sixth century,[2] the majority of the group seem to reflect the late date of the associated examples by their general chronological contexts.[3]

Although it is certainly possible that this group had relatively early origins, the general chronological pattern

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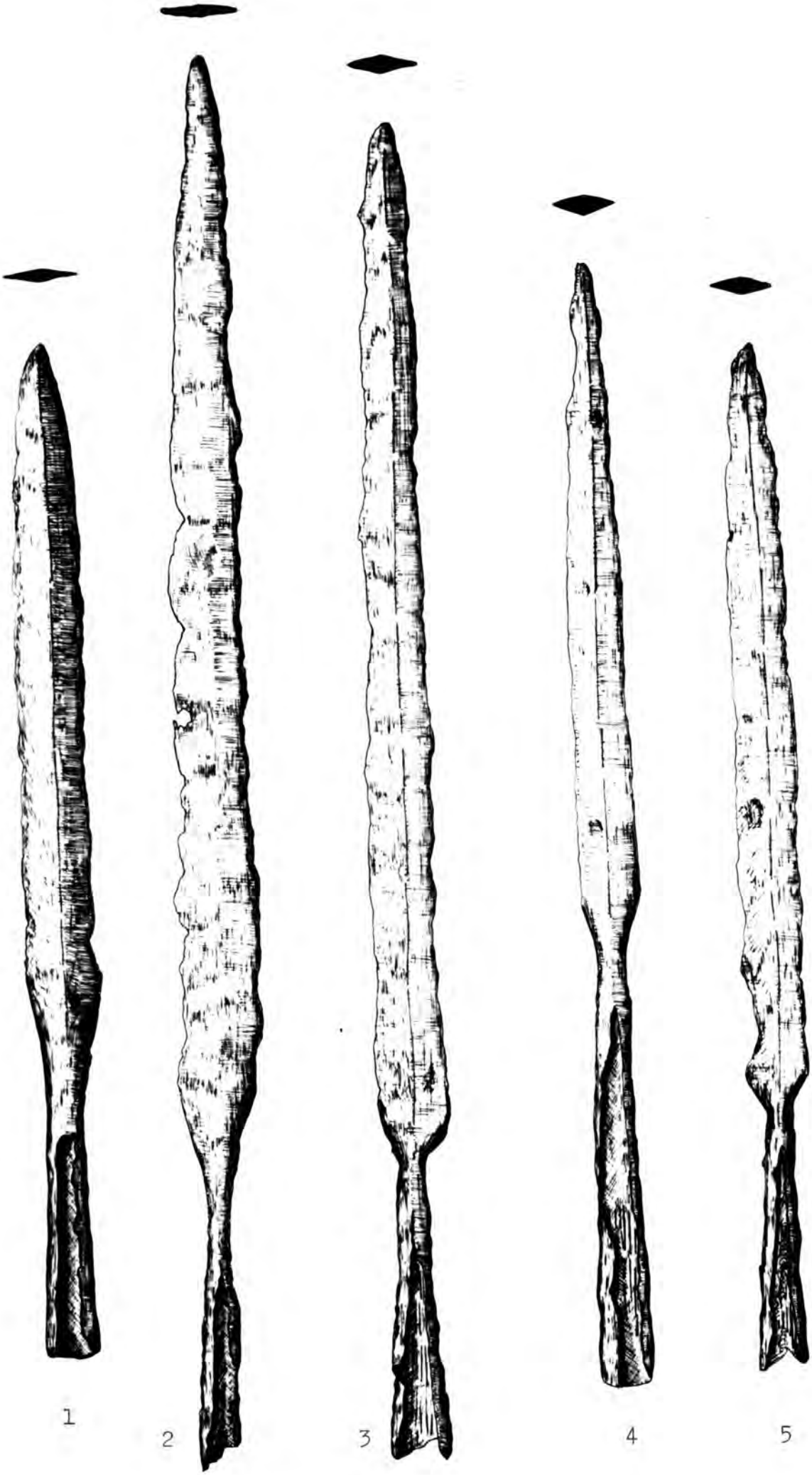
1. Evison VI. (1955) p.37.
2. For instance from: Abingdon gr.120; Bifrons (maid 877); Chatham Lines gr. 3; Driffield (york 412 47) (fig.18(2); Icklingham (bm 1932 10-10 1); Linton Heath gr.46; Little Wilbraham gr.77 and (camb 48 1626h); Market Overton (oak (13); Ramsgate (Ozingell): a cemetery poorly excavated during the last century, but with three examples surviving in contemporary drawings; and Sleaford (bm 83 4-1 590 and linc(9).
3. Eg. Barham Down (liv 6315)(fig.18(4); Faversham (bm 975 70 and (17,20 and 25) and (farn 1024); Ipswich (ips(27); Sibersswold gr.115. Another five are included in Faussett's east Kent collection (liv(5, 22, 40, 42, and 47).

Fig.19. Geographical distribution of group B4.

Fig.20. Types of Group B5.

(1) Old Shifford.
(2) Melton Mowbray (leic 64 1870(2).
(3) Barham Down (liv 6297).
(4) Astwick (bm 1915 12-18 350).
(5) Ipswich (ipsw(25).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seems to have been one of rapid development during the later half of the sixth century, and then establishment with the seventh, perhaps as a result of more settled conditions in the south-east especially, with more plentiful materials then made available.

Geographical distribution (fig.19) is very distinctive, and might be usefully regarded as presenting the essence of that shown for group B3, just as the physical form itself is an exaggeration or extreme development of that group. By far the largest concentration occurs in the cemeteries of east Kent, with one or two scattered elsewhere in the south-east, in Essex and Suffolk, and up the east of England through Cambridgeshire and Lincolnshire to a single outlier at Driffield in the Yorkshire Wolds. The pattern exhibited, in fact, is almost mutually exclusive with that shown for the smaller members of the series, B1 and 2.

Group B5 (fig.20) is made up of another smallish class of spears, which like those of group B4, also represents a typological development from group B3, although this time in the direction of delicacy. These spears are long and slender, tapering to a point, but with sides often seemingly almost parallel, the effect of which is increased because of the relatively small width of the blade compared with its length. Occasionally the angle at the junction is flaring and distinct; at other times a more obtuse angle

slips more gradually into the blade (compare fig.20 (2 and 3). Lengths range between an original 30 to 40 cms., very much the same as the range of group B3, although a little smaller, in keeping with the more slender proportions. Formally, this group might be considered to overlap to some extent with group E3, but this is kept distinct by its clearly parallel-sided, rather than tapering, sword shaped blade. At the same time there exists chronological and geographical similarities between these two groups, which seem to remain typologically distinct.

An example from Alvediston was found buried with a tall cone shield boss, while another from Dover B grave 39 was associated with a low cone shield boss and a small iron buckle with oval loop and rectangualr folded plate. But apart from these two late pieces there is no usefully associated example from this group. That from Northfleet (maid(8) with a rather fragmentary piece from Hunstanton is probably to be ascribed to a chronological context some time before the middle of the sixth century, but by far the greatest number of the group can probably be ascribed in equal parts to the sixth[1] and seventh centuries.[2]

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1. For instance from: Baginton (cov(1,5 and 18); Chessel Down (newp(1); Duston (north d.380); Fletton gr.11; Folkestone (folk(2); Howletts (bm 1936 5-11 150); Riseley gr.76; Sleaford (linc(11); and Woodston (pet L55 9).
2. Barham Down (liv 6297)(fig.20(3); Faversham (bm 91 70); Ipswich (ips(8,14,16,25 and 34)(fig.20(5); Prittlewell (south 425 3); Sarre (maid 881, 919, (18 and 25). There are in addition two examples from the Faussett collection from east Kent (liv(25 and 60).

Fig.21. Geographical distribution of group B5.

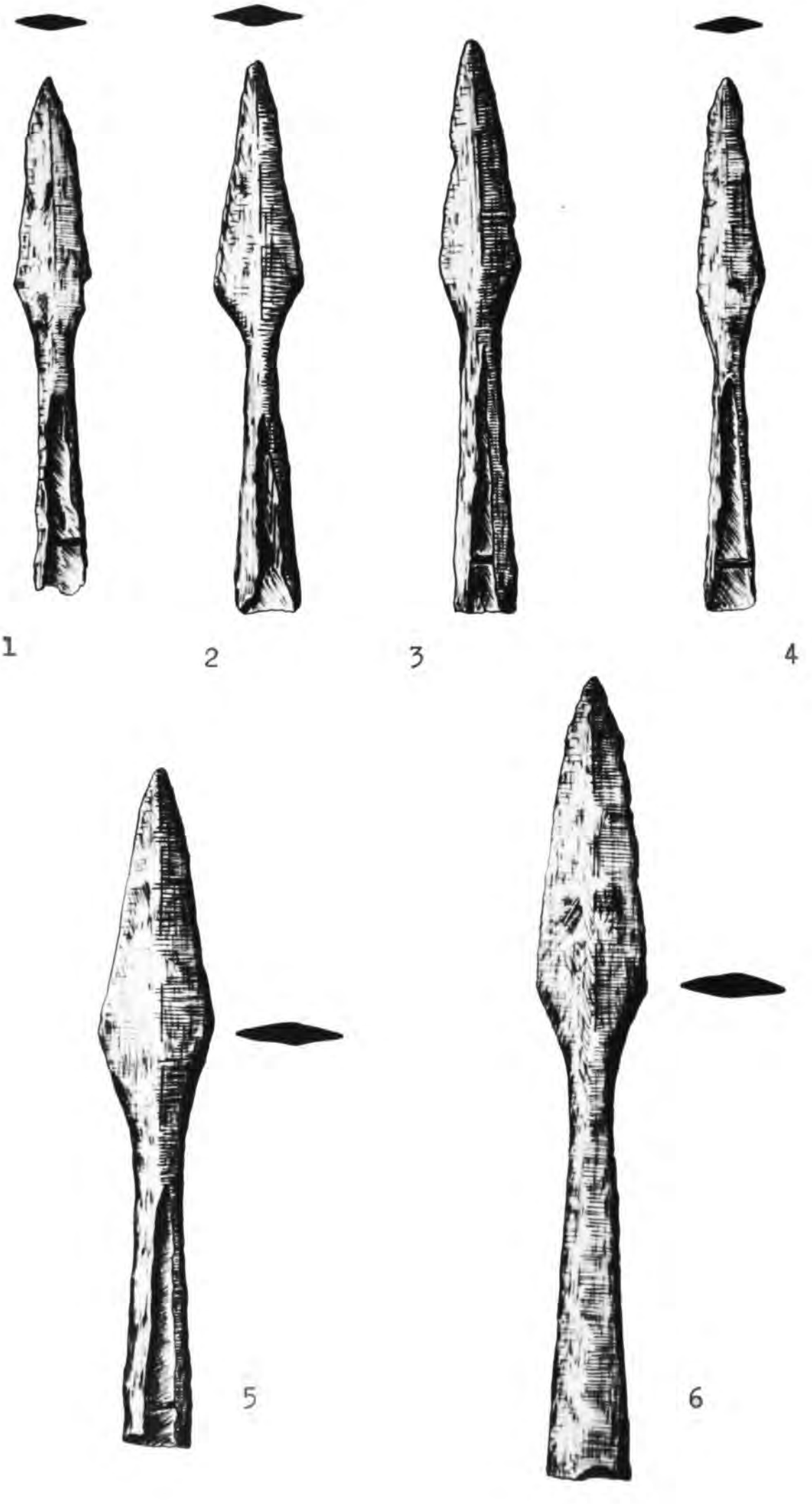
A possibly early feature occurs in a corroded but clearly closed socketed example from the Thames at Wandsworth (1m A15458); but as this variety is not represented on the continent either during the migration period, or at any other time, it seems more likely to represent either an example of advanced smithing, or a singularly late piece.

The chronological range of this group seems to cover most of the sixth and seventh centuries then, with no clearly early pieces. Like the associated groups B3 and 4 it seems to represent a development during the later half of the sixth century, finding full favour only in the seventh century for various possible reasons. It is possible that this group survived the abandonment of pagan funeral customs, but it has not proved possible to trace any clear typological development into any of the recognisable later varieties.

The geographical distribution of this group (fig.21), is largely that of the associated groups B3 and 4, with concentrations within the south east; Kent, Surrey and Suffolk, with an outlier remaining from Chessel Down; and a general scatter throughout the Midlands, especially towards the north-east: Northampton, Huntingdon and Lincolnshire.

Series C, in its typological origins, as already observed, is very similar to series B; basically the same sort of angular blade with a straight-sided profile, and

Fig.22. Types of Groups C1 (1-4) and C2 (5-6). (1) Croydon (bm 95 3-13 28). (2) Northfleet gr.1. (3) West Stow (bury K48.1). (4) Haslingfield (bm(14). (5) Frilford (ash 1886 1437). (6) Luton (lut(33).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the angle basally placed for the most part, but with the proportions between blade and socket now reversed, the blade being rather shorter than the socket and junction piece together in group C1, and the proportions becoming more distinct as the series develops to group C4. This tends to make for a relatively slender and more delicate series at all stages, than that of the B groups.

Group C1 (fig.22(1-4) save for the often only tenuously distinct proportions of blade to socket, present features otherwise indistinguishable from those of group B1. But these proportions are distinct overall, and the group is usefully defined as the typological origins of the C series; that is, those spears where the formally longish socket can first be detected. Also like B1, the spearheads of this group are relatively small, from 13 to 19 cms. in length; with the same sort of angle placed low in the blade.

No well associated examples occur from the relatively small numbers of this group. Those from Croydon (bm 95 3-13 28) and Northfleet (grav(1) (fig.22(1-2) however, may probably be ascribed to the relatively early contexts of these cemeteries, while most of the remaining pieces in the group are probably to be placed generally some time into the sixth century.[1]

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1. For instance, from: Abingdon, graves: 35a,39 and 77; Aston (bm 87 11-12 6); Alveston graves 56 and 67; Brooke (bm 70 11-5 31 and 32); Droxford (bm 1902 7-22 112); Fornham St. Martin (bury 47(1); Haslingfield (bm(14)(fig.22(4); Little Wilbraham (bm(2) and (camb 48 1648(4); Longbridge (bm 80 5-12 9); Long Wittenham graves 74, 155 and (bm(2); West Stow (bury 48(1)(fig.22(3).

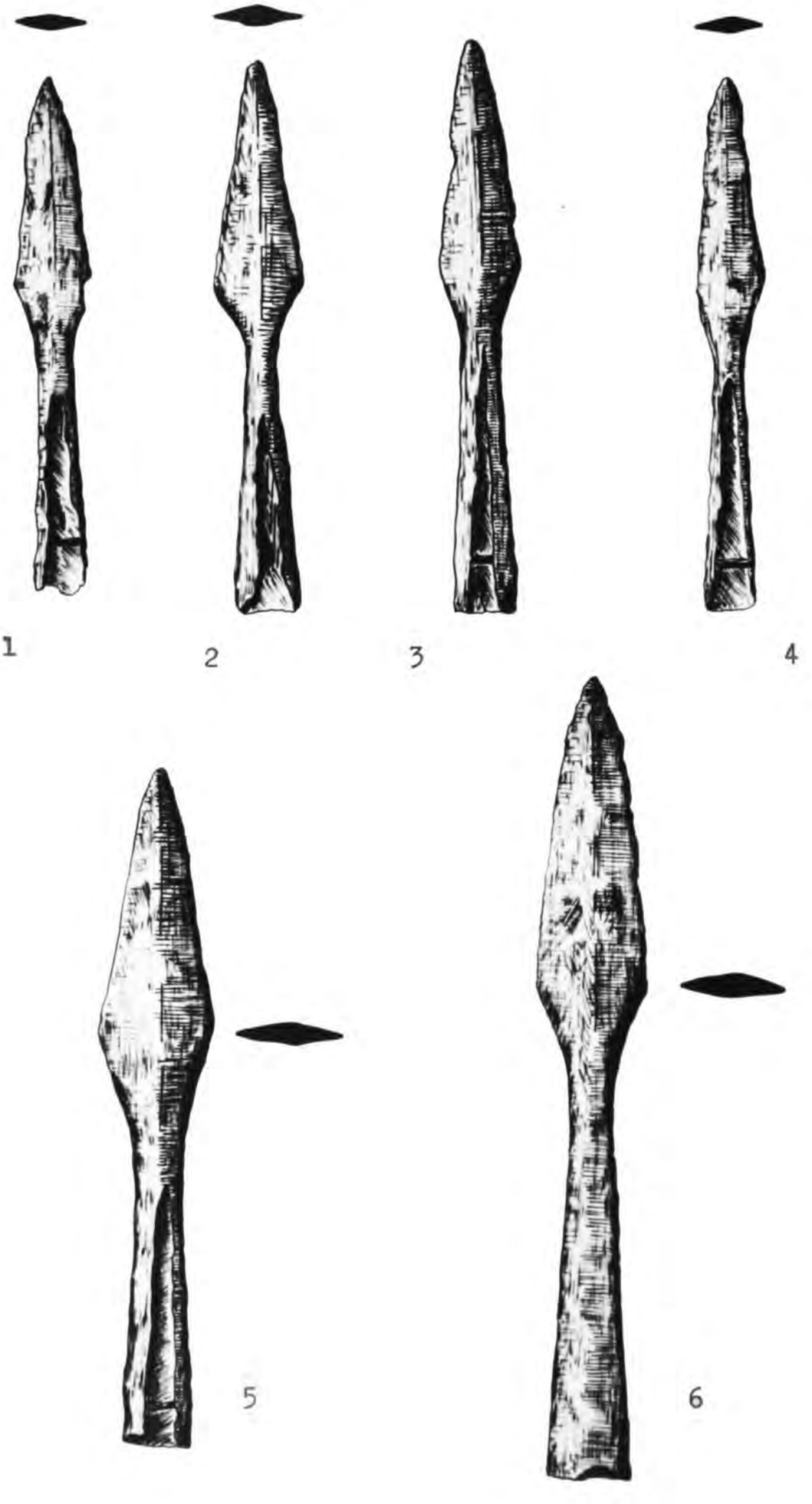
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Fig.23. Geographical distribution
of group C1:
and group C2:

While there is no absolute evidence for dating this group then, its chronological range could well be confined to the sixth century. It may have originated early in the times of the settlements, but there is no indication that it survived into the seventh century.

The geographical distribution of this group (fig.23), like its chronological range, is very much that of the closely associated group B1. More sparsely scattered, as a result of the relatively small numbers, it shows more or less the same pattern, with concentrations in the upper Thames and Berkshire downlands, and a scatter into the east Midlands. And outlying group occurs in the upper Avon, with one or two from Saxon settlement along the middle and lower Thames: Northfleet, Mitcham and Croydon. And as before, examples from the significantly "Jutish" south-east, like the Anglian regions north of the Witham, are noticeably absent.

Group C2 (fig.22(5-6), stands formally in the same relationship to group C1, as B2 did to B1; being much the same in profile as the former group, except with the proportions rather more exaggerated, the blade part distinctly shorter than the junction and socket overall, and a stage larger in bulk. Lengths correspond to those of B2, ranging for the most part between some 18 and 25 cms.

There are two usefully associated examples. That

from Dover B grave 87 was found with a buckelurne which must belong to some time in the sixth century, and is therefore early within the context of this cemetery. That from Strood (bm 94 8-3 82) however, was associated with a Frankish rouletted earthenware bottle-vase, a buckle with an oval loop and rectangular folded plate, a low cone shield boss and a long barbed dart of group L1. Two examples from the Dark Age settlement site at Bantham in the far south-west are apparently to be given a date some time in the later fifth or earlier sixth century; while clearly early is that from Luton (lut(33) (fig.22(6) exhibiting the derivative feature of a neatly welded closed socket.

Probably early too is an example from the context of the cemetery at Croydon (bm 95 3-13 26), but the remainder are probably to be ascribed more widely to dates within the sixth century,[1] with possibly a little later, corroded pieces from Chessel Down (bm 69 10-11 32) and Faversham (bm 893 70 and 83 12-13 657). Like the formally comparable group B2, this group probably begins early, to come into full favour in the sixth century, and survive if at all only in much smaller numbers into the beginning of the seventh.

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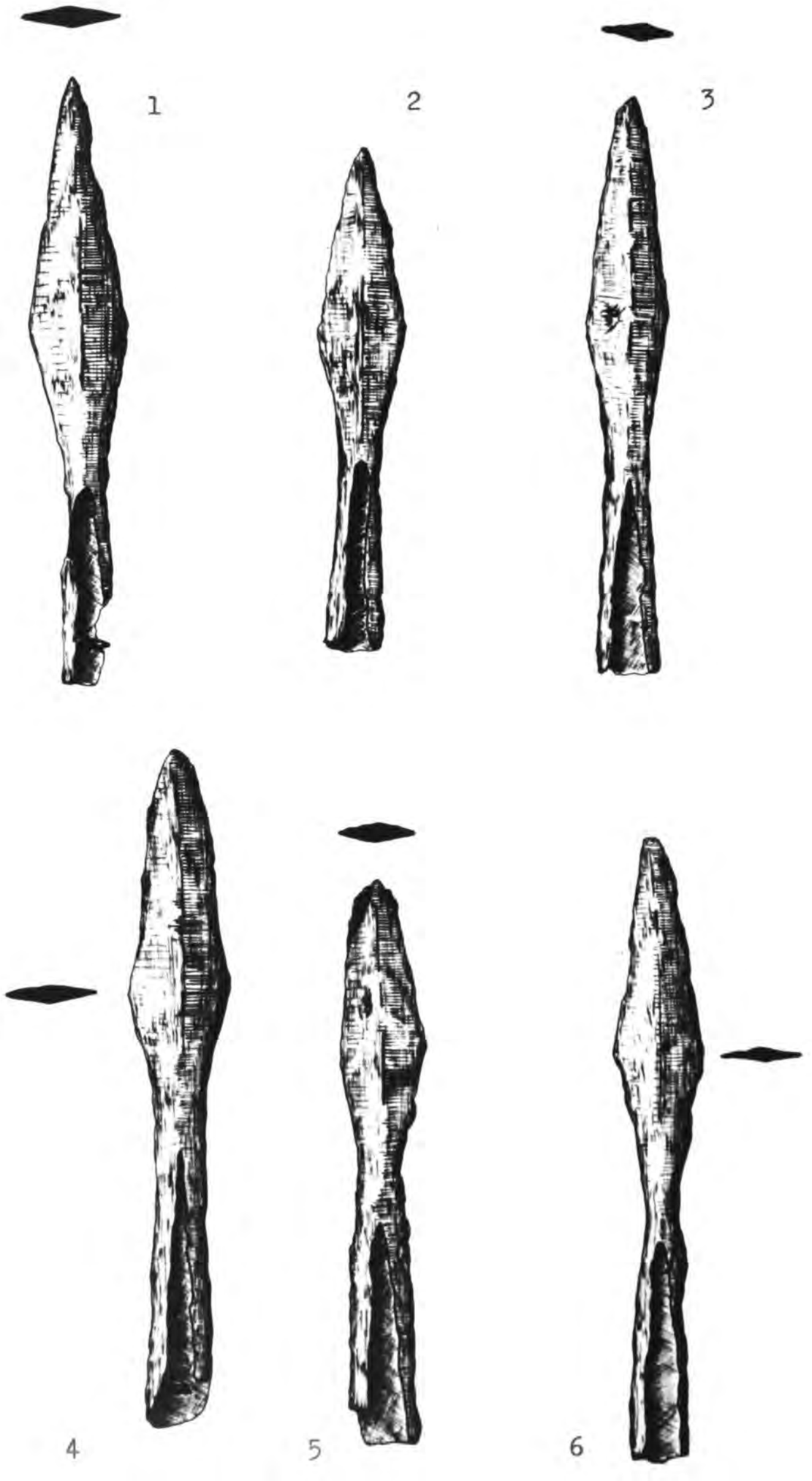
1. For instance from: Abingdon graves 21 and 39; Baginton (cov(6); Brooke (bm 70 11-5 30 and 33); Frilford (ash 1886 1437) (fig.22(5); Girton College (camb.240); Morecombelake (dorch 1927 6-1(2); Sleaford (bm 83 4-1 582); Stapenhill gr.(1).

Fig.25. Types of Groups D1 (1-3) and D2 (4-6).
(1) Droxford (bm 1902 7-22 107).
(2) Frilford gr.4. (3) Long Wittenham gr.64. (4) Kempston (bm 91 6-24 94).
(5) Long Wittenham gr.106. (6) Woodstone (pet.L556).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Its geographical distribution too (fig.23), like that of the former group C1, and the virtually subsidiary groups D1 and 2, (discussion of which follows immediately) has something in common with that of groups B1 and 2. This is not a very numerous group, and as a result lies rather thinly on the ground: a wide scatter from the east Midlands to the Upper Thames, and beyond into Dorset and Devon, but with a few in addition in Kent and a single perhaps doubtful outlier from Chessel Down. Possibly the most significant south-eastern pieces are early, reflecting the cultural admixture characteristic of the earliest 'mixed' phase of settlement in Kent.[1]

Groups D1 (fig.25 (1-3) and D2 (fig.25(4-6), represent small numbers of spears corresponding in many ways with groups B1 and 2 and C1 and 2, but typologically separable, and presenting interestingly distinct geographical patterns. Groups D1 and 2 conform more or less in proportions and size with groups C1 and 2 respectively, save that the angle of the blade in profile is placed rather higher toward the middle of the blade, and is consequently more obtuse, imparting a somewhat lozengiform effect to the whole.

Usefully associated examples from group D1 include those from Frilford grave 4, which was deposited with a sharply

1. The "Jutish" phase of Leeds E.T. (1936) pp.43-4; and cf. Hawkes C.F.C. (1956) The Jutes of Kent; in Harden D.B. (1956) pp.91-111.

carinated shield boss of early type; Long Wittenham grave 25, associated with a bronze bound bucket; and that from grave 17 at Alveston, found with a simple oval looped iron buckle, all of which could be placed some time in the sixth century, to which date the general chronological context of the remainder of the group could quite reasonably be ascribed.[1]

From group D2, the only example for which ascertainable associations are now identifiable is that from Long Wittenham grave 106 (fig.25(5), where it was found with a Frankish sheet bronze lugged bowl, and another spear of group B2. Those from Croydon (bm 95 3-13 27) and Luton (lut(24) may probably be ascribed to the generally early contexts of these cemeteries, although the majority of the remainder are probably to be grouped merely in the sixth century.[2] Two examples from Kempston (bm 91 6-24 94 and 97) are as likely to belong to the early as the late range of material from that cemetery. An example from Chartham Down grave 39, now unfortunately missing, is figured by Faussett with a closed or welded socket, with the rivet or nail piercing from the back rather than transversely. This might well

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1. For instance: Brooke (bm 70 11-5 34); Baginton (cov(10); Droxford (bm 1902 7-22 107, 113 and 114) (fig.25(1); East Shefford (ask 1955 354); Ewell (guild(1); Frilford gr.4 (fig.25(2); Fornham (bury 47(3); Long Wittenham gr.44, 64, 76 and 154 (fig.25(3); Sleaford (bm 83 4-1 580).
2. For instance, from: Baginton (cov(21 and 25); Brixworth (north d 400); Haslingfield (bm(1,6 and 8); Kempston (bm 91 6-24 94 and 97); (fig.25(4); Long Wittenham gr. 174; Saxby (leic I 1L 1946(3); Sleaford (bm 83 4-1 578); Woodston (pet 556) (fig.25(6).

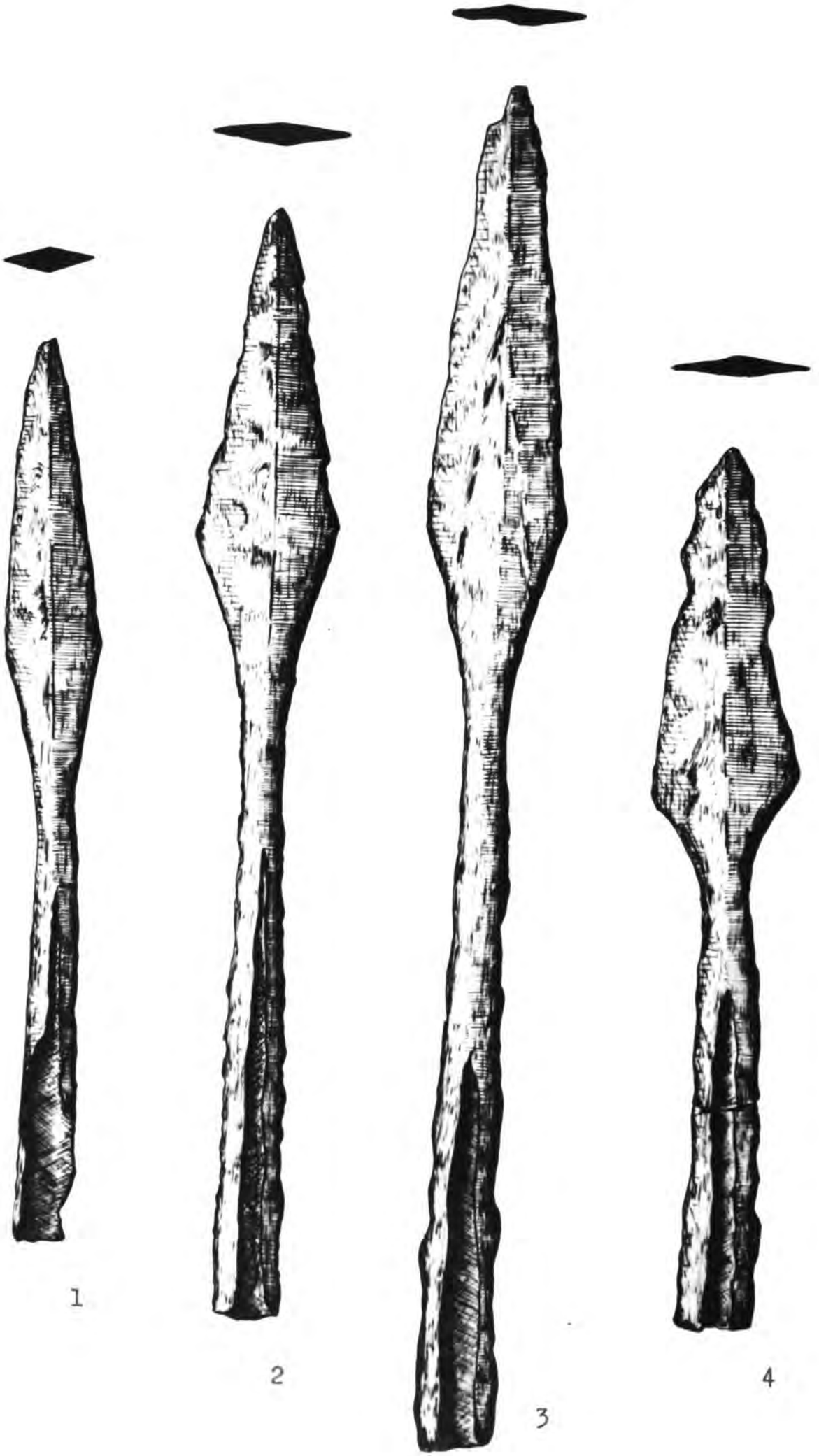
Fig.26. Geographical distribution of groups D1 ● and D2 o

be late, but is in any case atypically small in size, only some 13.2 cms. in length, and from a child's grave might well represent, as Faussett supposed, a "toy or ... perhaps an arrow."

The chronological range of these two groups D1 and 2, is much the same, apparently confined more or less to the sixth century; probably developing early, but hardly surviving its end. Their geographical distribution, however, so far as this might be assumed from two not very numerous groups, presents more distinctly divergent features (fig.26). Taken together, groups D1 and 2 repeat the familiar Wash-Upper Thames axis characteristic of other sixth century small angular-profiled groups, like B1 and 2, but they are separately spaced in themselves. Group D2 is scattered through the east Midlands for the most part, with one or two on the upper and Middle Thames; while group D1 seems more regularly "Saxon", generally over the south, but concentrated in the Upper Thames downlands, and with only single examples occuring in the east in Norfolk, Suffolk and Lincolnshire. In view of the general trend towards rather larger weapons, which we have noted, during the course of the sixth century with regard to the comparable groups of series B and C, it seems unlikely that this is to be accounted for merely by an arbitrary taste developing concurrently with movement towards the south-west.

Fig.27. Types of Group C3.

(1) Ebbesbourne Wake. (2) Sibertswold gr.23. (3) Narford Hall. (4) Aston (bm 87 11-12 8).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Group C3, (fig.27), although finding typological origins within the short angular profiled groups C1 and 2 discussed above, represents, together with the next group, a considerable advance or exaggeration of features definitive to the C series. Much larger overall, the majority vary between 30 and 40 cms. in length, with one example from Sibertswold grave 58 reaching some 43.0 cms. Rather smaller examples do occur, however, like that from the Thames at Brentford (lm 0.2086d), or one from Soham (bm 76 2-12 58) which on account of its atypically more slender proportions might represent a physical overlap with the next group, and is appropriately to be placed on general grounds somewhat earlier than the bulk of group C3. Although usually made with a stout broadish blade, the proportions between blade and socket lengths are now quite distinct, the latter, together with a solid junction piece, accounting for a clearly greater part of the entire length. The blade, lozengiform in section, exhibits an angle occasionally placed basally (fig.27(4), but most often higher and more obtuse, slipping more gradually into the junction (fig.27(1-3).

An interesting number of examples from this not very large group prove to be usefully associated. That from grave 54 at Alfriston is probably relatively late within the range of this cemetery, found together with an iron

bound bucket, and a low-cone shield boss. Shield bosses of similar type were found with others from: Ebbesbourne Wake (fig.27(1), Narford Hall (fig.27(3) and grave 25 at Nassington. An example from Woodingdean was found with a bronze oval-looped buckle of the type with a rectangular folded plate fixed with rivets at the end, and which probably had a plate covering the tongue that is now missing. Another from Oddington grave 1 was reportedly associated with a low-cone shield boss, and at the same time a pair of gilt bronze saucer brooches decorated in Style I with a central mask. A stout piece from Alton grave 16 was found with a late shield boss of the tall straight cone variety, a sword with a bronze "cocked hat" style pommel, and a silver triangular plated brooch of Taplow type, set with garnets and decorated with Style II filigree work.

Perhaps that from Alfriston grave U(2) is to be placed relatively early, but the general context of the great majority of the remainder of this group is probably centred in the later sixth and seventh centuries.[1]

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1. For instance from: Aston (bm 87 11-12 8) (fig.27(4); Aylesford (miad(1, 4 and 5); Barham Down (liv 6316); Brixworth (north d.262); Ipswich (ips(18, 21, 31 and 35); Little Wilbraham (camb 48 1636f); Mitcham (camb 58 19); Leighton Buzzard I gr.17; Sarre (maid 896); Sibertswold gs. 23, 28 and 58; Sleaford (bm 83 4-1 565); Sittingbourne (bm 83 4-1 632 and 635). There are in addition two other pieces in Maidstone Museum (maid(11 and 13) which seem by their condition more likely to emanate from Sarre than Bifrons; and another in the east Kent collection of Faussett (liv.(55).

Although without obvious Germanic antecedents, spears comparable with this group (fig.27(1-3), but for the most part more slender, are found from the first half of the sixth century in Alamannic and Frankish graves,[1] becoming more common over the same general area during the course of the same and following century;[2] with the odd example, perhaps representing imports, recorded from Scandinavia during the seventh.[3]

In England this group is distinctly dated; with no clearly early examples, it might be said to have developed during the sixth century, and probably in the second half, only achieving favour in the late sixth and seventh century. As with group B3, it is not likely that this group experienced a sudden falling off, or extinction simultaneous with the abandonment of pagan funeral customs towards the end of the seventh century, and a clear typological continuity is observable with the attestedly late group O3, often identical in form, even to the split socket, but frequently with pattern-welded blades.[4]

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1. Eg. from Sindelfingen, Ergenzingen, Kornwestheim, Oberleuken, or Tawern-Röler: Veek W. (1931) pp.206-9, 226, 272, taf.71A (4, 6, 8), 71B(5), 73A(2, 4,); Böhner K. (1958) II p.150, taf.28(3). Cf. Charnay (Saone), St.-Germain-en-Laye regs. 34919.
2. Eg. Hailfingen, Bülach, Munningen, Lezeville: Stoll H. (1939) pp.52, 71, taf.32(12-13); Werner J. (1953) pp.94, 108, graves 62, 71 and 127; Werner J. (1935) Münzdatierte Austrasische Grabfunde. p.89 taf.14; Salin E. (1922) p.137 fig.11(b).
3. Salmo H. (1938) 183-6 taf.xxxi(3).
4. See this section pp.275-8.

Fig.28. Geographical distribution of group C3.

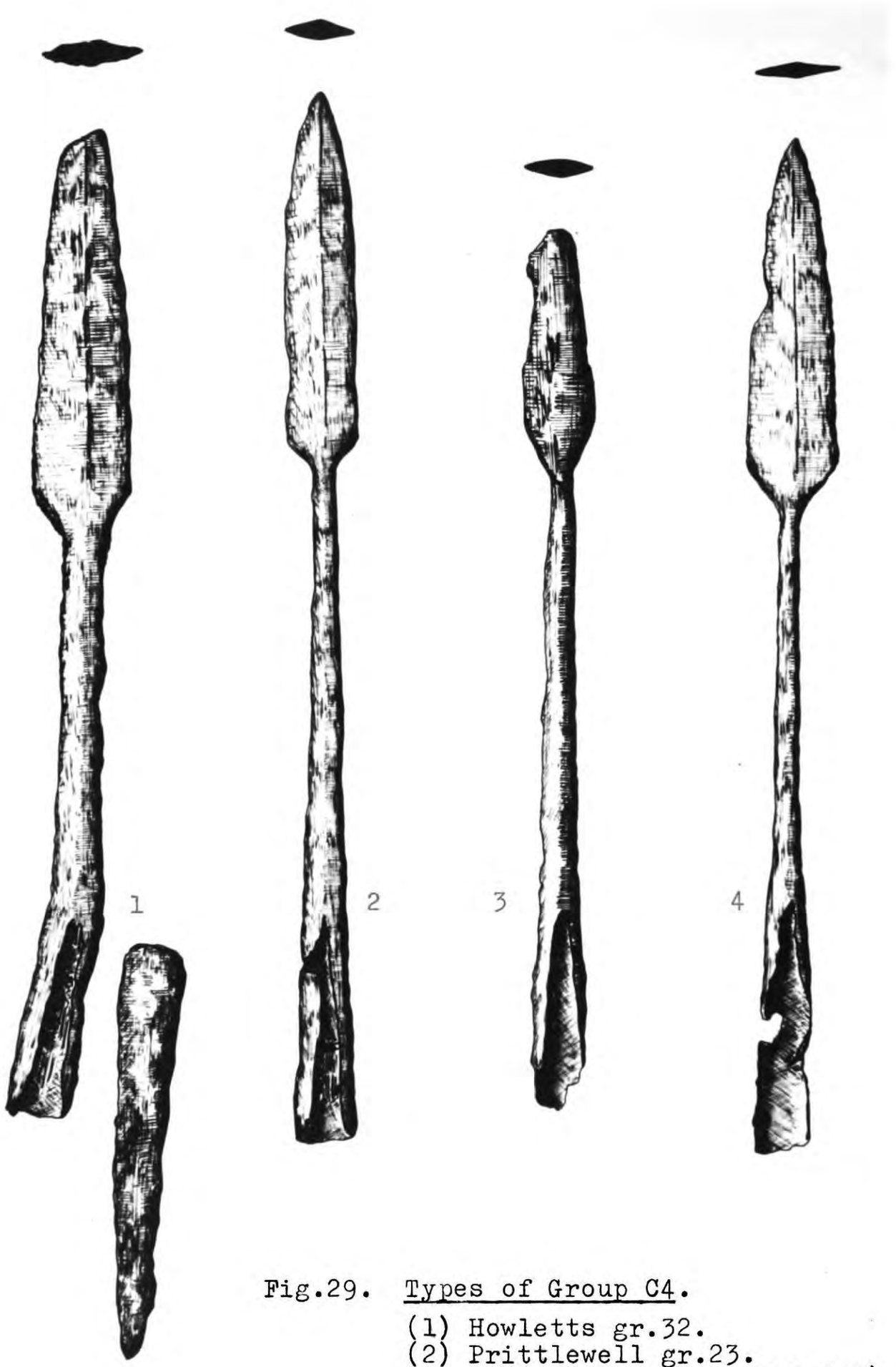

Fig.29. Types of Group C4.

(1) Howletts gr.32.
(2) Prittlewell gr.23.
(3) Astwick (bm 1915 12-8 359).
(4) Brentford (lm 0.2085).

The geographical distribution of this group (fig.28), seems very general, but with significant concentrations in east Kent, the middle Thames, and to a lesser extent coastal Suffolk, the pattern might well indicate a repetition of the "Jutish south-east" emphasis of the larger and more elaborate groups among the B series. Absent, however, are examples from further north in the Anglian east, and more significantly, perhaps, from the west Midlands.

Group C4, (fig.29), much lesser in numbers than the former group, but formally related, present the characteristic features of this group at an extreme. Due to relatively delicate construction, few of this group remain entire, but most seem to have measured some 33 to 35 cms. in length; and present at the same time much less bulk than the former group, being of more slender appearance overall: smallish angular blades placed on relatively long thin sockets with appropriate junction lengths of solid round section. The blades vary in form, some tapering with a rounded profile from the angle, (fig.29(4), others rather more parallel-sided before the point (fig.29(2); but all thinly lozengiform in section, with the angle more or less basally placed, and acute, springing directly from the junction.

To some time in the sixth century must probably belong that from grave 2 at Alveston, found together with a sharply carinated shield boss, but better associated was the example from Howletts grave 32 (fig.29(1), deposited together with

a richly inlaid iron buckle with a kidney-shaped plate and rectangular loop, which is certainly to be ascribed a relatively early date, some time in the later fifth or earliest sixth centuries.[1] Of the remaining examples, a rather fragmentary piece from Stapehill (burt(1) is probably to be placed within the general chronological context of that cemetery some time in the first half of the sixth century, but the majority are probably to be ascribed, from their contexts, to much later in the sixth or the seventh century.[2] An example from the Thames at Brentford (lm 0.2085) is almost identical to that from the same place, figured (29(4) save for a closed socket, overlapped rather than properly butt-welded. If this is not to be dismissed as the arbitrary whim of a particular smith, it seems more reasonably indicative of a latish date rather than an early and derivative one, in view of the general chronological range of this group as a whole, and the entire lack of apparent continental antecedent forms. On the other hand there is no typological indication that this group, unlike C3, long survived the end of the seventh century.

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1. Evison VI. (1955) p.37, pl.IVe.
2. For instance, from: Barham Down (liv.6321); Prittlewell gr.23; Sarre gr.253. A further fragmentary piece (maid (20) more probably emanates from Sarre than Bifrons, while another example is included in the Fausett collection of east Kent material (liv(2).

As with the former group there seem to be no continental antecedent forms prior to the sixth century,[1] when the few comparable forms that do occur, like that from Armentières grave 14,[2] or another two from Hailfingen,[3] dateable to the earlier sixth century, present similarly fine and delicate profiles, exhibiting a higher more obtuse blade-angle, which classes them as merely more slender examples of the previous group.

While this group in England has clearly dated origins some time during the earlier phase of settlement, it comes into increasing favour only with the later sixth and seventh centuries. But there is no clearly traceable typological development of this group among the attestedly later series, as there is for the stouter C3; and like the somewhat similar slender varieties of groups J4 and L1, it may be assumed that this type of spearhead is abandoned simultaneously with, or shortly after the abandonment of pagan funeral customs, perhaps due to changing conditions in

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1. Early pila forms as at Alise included unbarbed examples, but it is not clear whether the late Roman missiles described by Vegetius (See section II, pp. 56-7) included such forms. But if an origin for this group is to be sought here, it is surely curious that none is known from fourth or fifth century contexts.
2. Dated by a glass bell beaker which Rademacher would place in the early sixth century: (Rademacher F. (1942) Fränkische Gläser aus dem Rheinlande; Bonner Jahrb. CXLVII p.311 ff.) and cf. the form from Charnay (St. Germain-en-Laye 34686).
3. Stoll H. (1939) graves 269 and 411, pp.57, 66, taf.8(2), 9(2).

Fig.30. Geographical distribution of group C4.

contemporary warfare.[1] The closed-socketed example from the Thames at Brentford, like the balusterd example of group J4 from Wandsworth,[2] probably represents the last discernable manifestation of this group, although, of course, no clear date can be placed on it.

Due to the relatively small numbers of this group, no really reliable pattern of geographical distribution (fig.30) may be deduced, but such as there is looks interesting. Like the former group, the small concentrations that there are, are within the "Jutish south-east" in east Kent and on the middle Thames. Noticeably absent, to a greater degree than before, are examples in the east Midlands and the north: while only a single piece remains from the upper Thames. The three sparsely dotted examples from the west Midlands, however, form a feature mutually exclusive with group C3. Perhaps those warriors along the western Marches who adopted this sort of weapon tended to favour the lighter, more delicate variety available.

Series E is made up from groups of variously sized and proportioned spear-heads, all exhibiting longish blades with sides noticeably parallel before a pointed tip, and on relatively short sockets. No comparable continental groups are to be discerned for this series.

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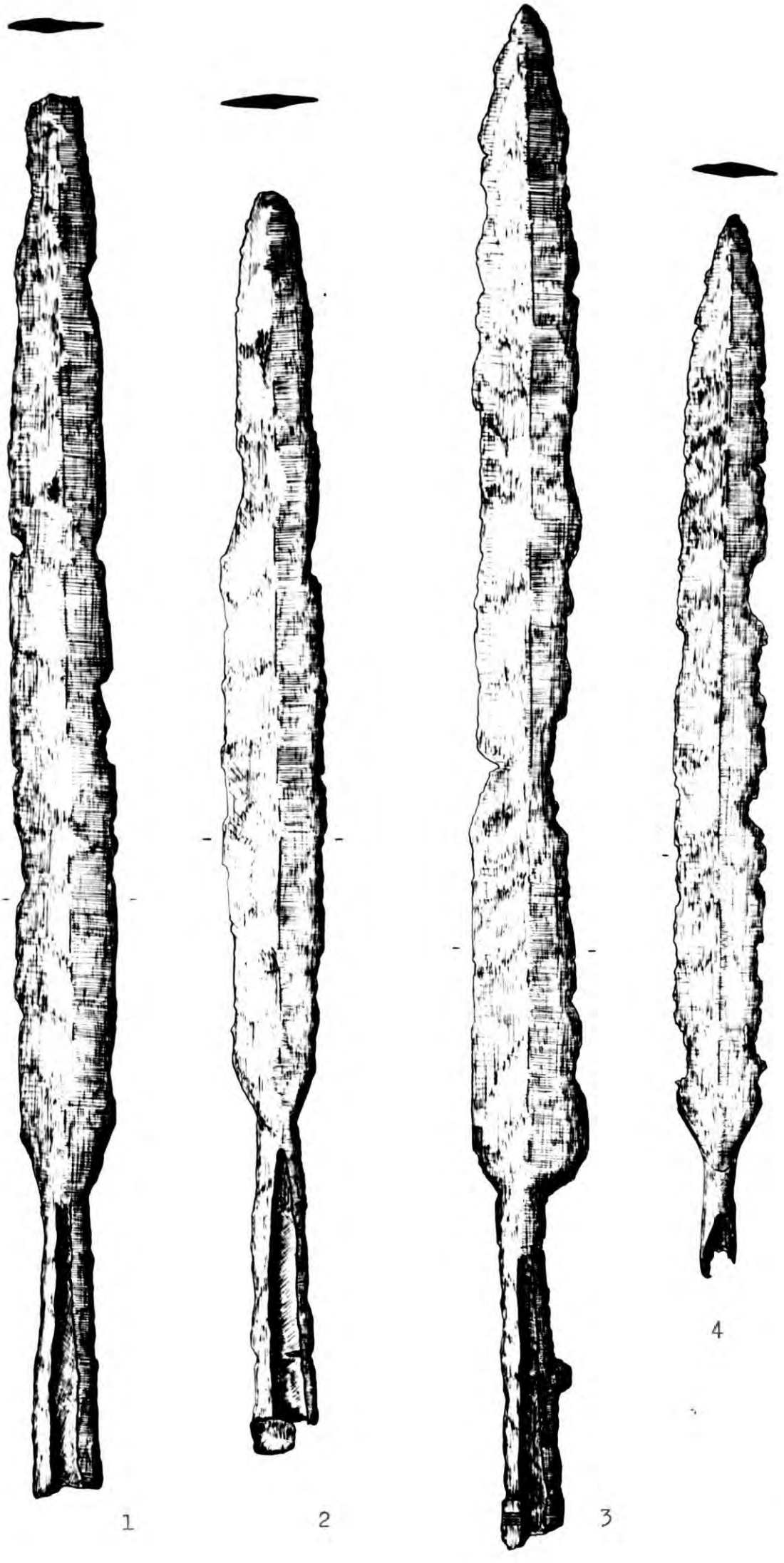
1. See section VI, passim.
2. See this section p. 214.

Fig.31. Types of Group E1.

(1) Puxton. (2) Dover B gr.33.
(3) Folkestone gr.5. (4) Holborough gr.7.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Group E1, (fig.31), the largest of the series in size, varies in length between some 35 and 50 cms. with the occasional examples rather larger like that from Folkestone grave 5 measuring 58.2 cms. complete; and all are proportionately broad, having long sword-like blades with parallel sides and a pointed tip, the angle basally placed right down at the junction, but usually fairly obtuse as a result of the parallel sided profile. Sockets are short, something under a quarter of the whole length, and usually split up their entire length, frequently showing the additional feature of a binding ring or band at the lower end (fig.31(2-3) necessitated by the distorting pressure of length and bulk above.

The large example from Folkestone grave 5 was buried, like that from Colchester (colch pc.1509), with a low cone shield boss, although the former was equipped with a small silver plated terminal button. A similar low cone shield boss was associated with the wire-motif inlaid piece from grave 7 at Holborough (fig.31(4) in addition to a small beaked bronze buckle which must be placed in the seventh century. From Dover B grave 33 comes an example (fig.31(2) which was found with an iron buckle of the type with an oval loop and a rectangular folded plate with three bronze studs at the back end. That from Barrington grave A14 merely had a simple small oval looped bronze buckle.

Fig.32. Geographical distribution of group E1.

Another example was included with the spears from Sutton Hoo (bm(1).

The relatively late date indicated by these associations is reflected by the general contexts of the remainder, which are probably to be placed in the sixth[1] or more in the seventh century.[2] The chronological range of this group therefore, is very much that of the larger B groups, beginning perhaps before the middle of the sixth century, but only really coming into favour with the late sixth or seventh century. An interesting piece from Gowts Bridge Lincoln, with a fragmentary but probably closed socket, and furrowed decoration at the junction characteristic of the late R series,[3] may possibly represent the late continuity of this kind of profile. But unlike the late B groups, however, there is no real indication that this type of spear long survived the end of the seventh century, and cannot certainly be shown on typological grounds to have developed into any of the attestedly late groups.

Its geographical distribution too (fig.32), is very much that which we have seen to be characteristic of the larger more expensive angular series groups B3 or 4. The

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1. For instance, from: Bifrons (maid 620 1954,28); Driffield gr.6; Exning (camb A 1904 438); Howlettes (bm(4) and (quex 164 1914); Sleaford (bm 4-1 588).
2. Eg.: Aylesford (maid(2); Faversham (bm 987 70); Ipswich (ips 1907 29(1, 11, 12 and 40); Prittlewell gr.29; Sarre (maid 911(2) and bm 193 6-1 231).
3. See this section, p.278.

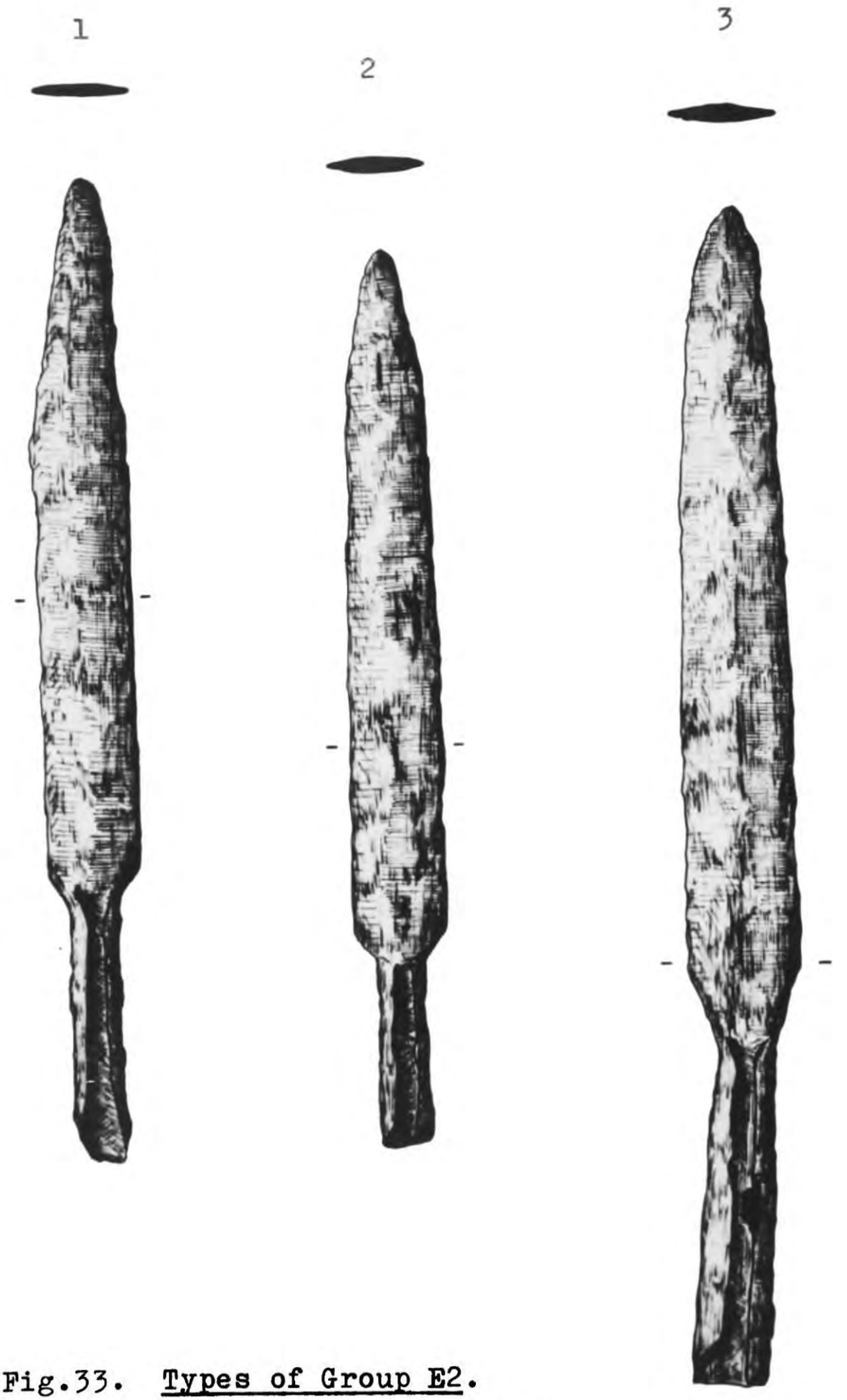

Fig.33. Types of Group E2.

(1) East Shefford gr.E.
(2) Searby (bm 93 6-18 22).
(3) Sleaford (bm 83 4-1 558).

pattern is essentially south-eastern, with concentrations in Kent, Essex and Suffolk, and a very sparse scatter of single examples up the east through Lincolnshire to Driffield in the east Yorkshire Wolds. A curious single outlier remains in the west Midlands at Puxton.

Group E2 (fig.33), although much smaller in bulk of material used, is still relatively restricted in numbers. While exactly similar to the former group in the matter of profile and proportions, save that the socket part now forms more nearly a quarter or more of the whole, they cover a distinctly smaller range, measuring from 22 to some 30 cms. in length. The bulk of the whole as a result is not apparently sufficient to necessitate the provision of binding rings as in the previous group, in any of the remaining instances. The sockets of this group, however, often appear almost slovenly made, with the cleft of the upper end at the junction frequently no more than burred over outwards. This seems to occur especially either in earlyish examples, like that from East Shefford (bm 93 7-16 122)(fig.33(1), or in those from the distributional periphery, like those from Searby (fig.33(2) Broadchalke grave 3, or Alveston (strat(1 and 2).

The example from Searby, apparently from a double grave, was found together with a tinned bronze disc brooch engraved with a quincunx of circle-and-dot motifs, simple annular and ribbed penannular brooches, and a pair of

bronze girdle-hangers which probably place the burial merely to some time in the sixth century. The very similar piece from East Shefford with a simply burred socket might well be ascribed to some time in the earlier sixth century, in the general chronological context of this cemetery, with the greater part of the remainder probably from some time roughly in the same century.[1] More clearly from the seventh century come those from Ash grave (1) Ipswich (ips(1907 29(3,4,5,6 and 29) and Sarre (maid 908 and (3). Two other pieces in the Maidstone collection seem more likely to emanate from Sarre than Bifrons (maid 919 and (9).

The chronological range of this group, then, seems as wide as for the former; with origins in the later fifth and sixth century, and the bulk of examples coming from the sixth century generally; although they certainly survive well into the seventh, when the bulkier examples of group E1 become more dominant. As with the former group, there is no apparent continental antecedent form nor any comparable contemporary group, and on what evidence we have, the group seems to have fallen off considerably, if not died out altogether, by the end of the seventh century. A rather late example, very corroded

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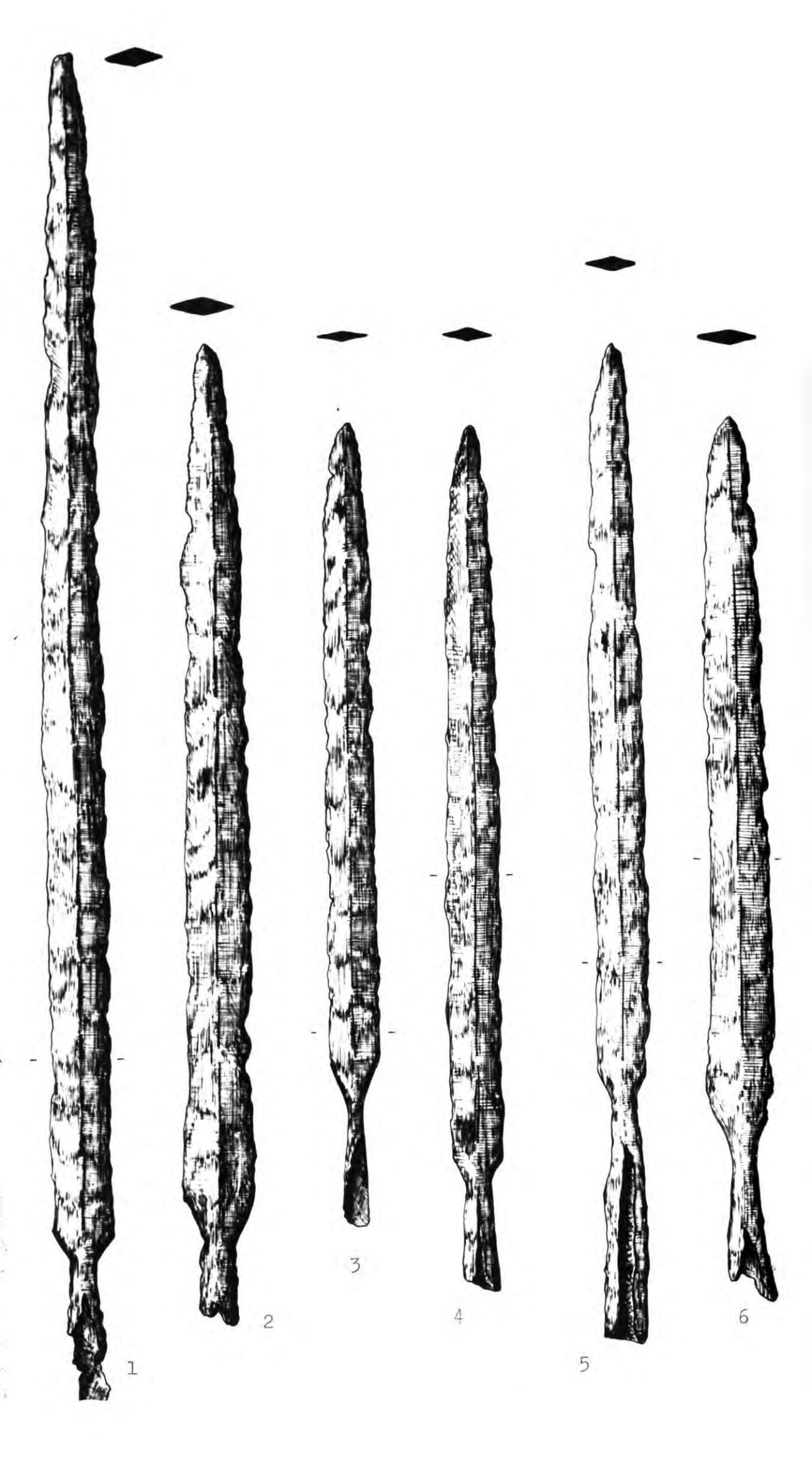
1. For instance from: Alton (alt 1959 62); Alveston (strat(1 and 2); Bifrons (maid 620 1954 23); Brooke (bm 70 11-5 27); Eastry (maid(3); Folestone gr.15; Longbridge (bm 80 5-21 8); Mitcham (camb 58 18 and lm 56 106-7); Sleaford (bm 83 4-1 558) (fig.33(3); Woodston B (pet(2).

Fig.34. Geographical distribution of group E2.

Fig.35. Types of Group E3.

(1) Lowesby (leic 80 1854(2).
(2) Prittlewell gr.27.
(3) Sedgeford.
(4) Wheatley (ash(4).
(5) Wrotham (bm 1927 5-12 8).
(6) Alton (alt 1959 63).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and certainly atypical, might be that from the well-known grave at West Ham, Basingstoke, which also contained the bronze hanging bowl with bird escutcheons, an iron vessel and another spear of group I2. This might be given an eighth century date possibly; but if it is to be attributed to a Scandinavian raider of this time, it is curious that the weapon finds no parallel in these regions. The group cannot be shown to survive in modified form into one of the attestedly late groups.

The geographical distribution of this group (fig.34) presents similar concentrations to those of group E1, in east Kent and Suffolk, but is more widely spread overall:- along the Thames and down in Hampshire, on the Avon in the west Midlands, and with single examples on the Wash rivers in the east.

Group E3 (fig.35), the most slender varient of the E series, ranges in length for the most part from 40 to 50 cms. and with one example from Lowesby (fig.35(1) reaching a fragmentary 58.0 cms., but rarely exceeds some 2.5 cms. in breadth at any part of the length. Otherwise this group presents all of the features characterising the first group of the series: a long parallel-sided blade, lozengiform in section, with the angle basally placed, and a split socket less than a quarter, and usually more like a fifth, of the whole length. Despite the often great length of this group of spears, only one example from Mitcham (king L38), rather broader than most, seems

Fig.36. Geographical distribution of group E3.

to merit the addition of a binding ring at the base of the socket, which was a characteristic feature of the other long spear in this series. In some cases corrosion seems to blur the distinction between this group, and the more tapering group B5, but the overall slenderness and proportions of the group remain distinctive.

The numbers of this group are relatively small, and only one example is reasonably well associated: that from grave 27 at Prittlewell (fig.35(2) which was found with a low cone shield boss. That from Croydon (bm 95 3-13 22) may well be ascribable to the relatively early context of that cemetery, but each of the remainder can probably be bulked in the sixth century or later.[1] Perhaps that from Roundway Down is to be ascribed to a general context some time later in the seventh century. The general chronological range of the group seems therefore to be very wide, with examples occuring both early and late, but with the majority perhaps centring on the later sixth century. Geographical distribution too (fig.36) is equally widespread, with scattered examples generally in the south, but significant with numbers in the east Midlands or north noticeably absent, with no example for instance, in Suffolk.

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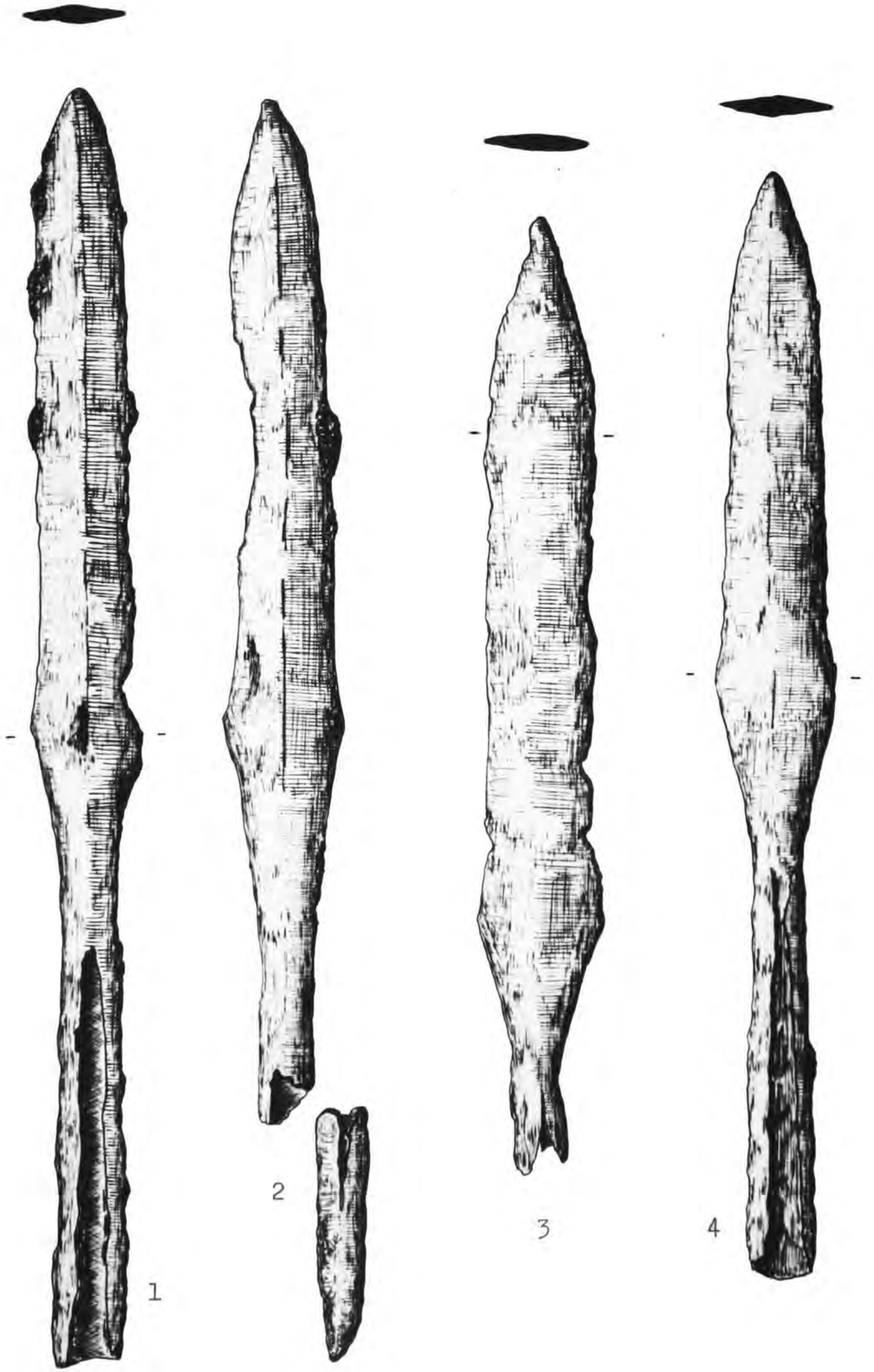
1. For instance: from Alton (alt 1959 63) (fig.35(6); Baginton (cov(7); Dover B (an unnumbered piece); Market Overton (oak(14); Mitcham (kingL38); Standlake Down (ash 1921 1118); Wheatley (ash(1) (fig.35(4); Wrotham (bm 1927 5-12 8) (fig.35(5). A further example is included in the Faussett east Kent collection (liv(41).

Fig.37. Types of Group E4.

(1) Sleaford (bm 83 4-1 553).
(2) Alveston gr.31.
(3) Kilham (york 396 47).
(4) Ruskington (linc 35.56).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Group E4, (fig.37), formally distinct from each of the other three groups in this series, presents characteristically differentiated features in profile, while retaining the major series trait of parallel sides for the greater length of its blade. A relatively bulky weapon, measuring from 33 to 43 cms. in length for the most part, the proportions differ considerably from those of groups E1 to 3, in having more equal proportions between blade and socket pieces; the socket being split for the greater part of its length. The angle of the blade, lozengiform in section, remains basally placed, but rather higher than formerly, giving a more obtuse angle; which effect is off-set by a slight strickening or concave curve immediately above the angle, which runs thus smoothly into the parallel-sided length of the blade, towards a pointed tip. This strickened angular blade represents a feature adopted from the F series, with which it shares chronological and distributional characteristics, and save for the significantly parallel sides, this group might well overlap with group F5.

A relatively large number of examples from this group are usefully associated. An example from grave H at Alfriston was buried with narrow oval-looped iron and bronze buckles, another from Barrington A grave 16 with a shield boss of early carinated form, while those from Alveston grave 45 and Broadchalke were found with shield

Fig.38. Geographical distribution of group E4.

bosses of the later low-cone variety. A probable example comes from Bekesbourne grave 3, where it was found with an oval-looped buckle with a shield on the tongue, and shoe-shaped studs. Probably to about the same time in the late sixth century, is to be placed that from grave 39b at Sarre, found with a bronze bound bucket, a broad-edged axe, and a similar buckle with an expanded shield on the tongue. Perhaps examples from High Down (worth(1) or Kilham (york 396 47) (fig.37(3) are to be ascribed to the relatively early contexts of their cemeteries, but the bulk of the others are centred merely on the sixth century,[1] with only the pieces from Faversham (bm(2) and Kempston (bm 91 4-14 7) even possibly from the seventh.[2]

The chronological range of this group, then, seems to have been largely confined to the sixth century, and probably the later half; beginning early possibly, but scarcely surviving into the early part of the seventh century. The geographical distribution of this group too, (fig.38) differs from that of other groups in the series. A general scatter, mostly of single examples,

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1. For instance, from: Alveston gs.30 and 31 (fig.37(2); Aston (bm 87 11-4 4); Baginton (cov(13); Barrington A (bm 76 2-12 59?; Bifrons (maid 620 1954 27 and 882); Cambridge (camb(1); Duston (north d.402); Ewell (guild(2); Haslingfield (bm(4, 5 and 13); Kempston (bm 91 4-14 7); Little Wilbraham (camb 48 1636g); Longbridge (bm 80 5-21 4); Market Overton (oak(16); Ruskington (linc 35 56a) (fig.37(4) Sleaford (bm 4-1 553, 555 and 561) (fig.37(1).
2. Either of these might equally well come from the earlier as from the later group of graves in each cemetery.

is seen throughout the south, but with significant concentrations in the east and west Midlands, and reaching through Lincolnshire to a single outlier at Kilham in the east Yorkshire wolds. Like the chronological range, this presents a pattern clearly distinct from any of the other groups of the E series, with which, on formal grounds, it is included. It is most usefully to be classed, in these respects, with the F series.

Series F, comprises a number of groups of spear-heads, varying in size and proportion, but each presenting an angular profile in a lozengiform section blade, with a strickening or concave curve above the angle leading into a more or less convex curve towards the tip.

Some of the earliest angular profiled spears known, from Hallstatt times at Tidavad,[1] exhibit a tendency towards this characteristic, and it remains a recurrent feature in the sporadic occurrence of angular spear-heads, usually in Scandinavia, until Migration times, when it is best seen in the stout forms of the fourth century deposit at Skede Moss, or rather later at Kragehul.[2] There are no strictly comparable continental groups to associate with insular forms, however, which therefore seem to have developed on entirely divergent lines. But during and after the period of migrations, developed forms of these concave angular profiles remain characteristic

1. See section II, pp. 37-8.
2. See section II, pp. 81-2.

of northern Germanic regions, found frequently in Scandinavia and on the Frankish Rhine, but rarely if ever elsewhere. The stout relatively broad variety, larger in size and frequently with a firm rounded midrib continues in Scandinavia throughout the fifth and sixth centuries,[1] with the occasional example surviving into the seventh.[2] It is probably this type of spear-head, equipped with large rivet heads on the socket, which is figured on the helmet plates from Vendel grave 14 (fig.109(3) which like those on the Torsulunda dies[4] may well have represented "classic" or antique forms for their time. Certainly Merovingian period representations like these, employ only this form together with the equally classic barbed dart, which seems not to have been in use in Scandinavia at the time the helmets were deposited at Vendel, although these, of course, could always have been antique accompaniments of the burials. An example from Finland dated roughly to about 600 A.D., has the blade decorated overall with little etched segments arranged in rows, which must surely represent the very latest degenerate phase of this kind of ornament.[5]

From the later sixth century onwards a more slender variety is found, long in the blade and without the

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1. Fett P. (1940), species G, p.24, fig.25.
2. Eg. at Ovanaaker: Hallström G. (1937) Ovanaakers sockens fornhistoria; p.179, fig.40a; or Gotland: Nerman B. (1935) taf. 55 (595).
3. Stolpe H. and Arne T.J. (1912) pl.vi(2).
4. Montelius O. (1872) Ett fynd fraan slutet af jernaaldern, fig. 36-9.
5. Kivikoski E. (1937) p.54, taf.61(499).

traditional midribbing, but frequently with the large ornamental rivet heads, characteristic of the Vendel plates, and already noticed on continental counterparts to the insular midribbed group A2. Examples occur thus from sites on Gotland, Bornholm and in Finland,[1] but occur euqally until about 700 A.D. in Lower Saxony,[2] and on the Rhine and Meuse,[3] Examples which form an overlapping kind with the primitive stouter variety are found in Frankish regions as early as the second half of the sixth century,[4] but in view of the general pattern, are likely to be ultimately if not immediately derivative from regions further north in the Germanic congress, despite the large rivet heads frequently found on these types.

A third variety especially characteristic of Norway during the sixth century,[5] and found sporadically in other parts of Scandinavia,[6] is made much more slender usually, with the angle suddenly broad at the base of a long slender midribbed blade, giving the effect of triangular wings at the junction. Occasionally a notch, as an

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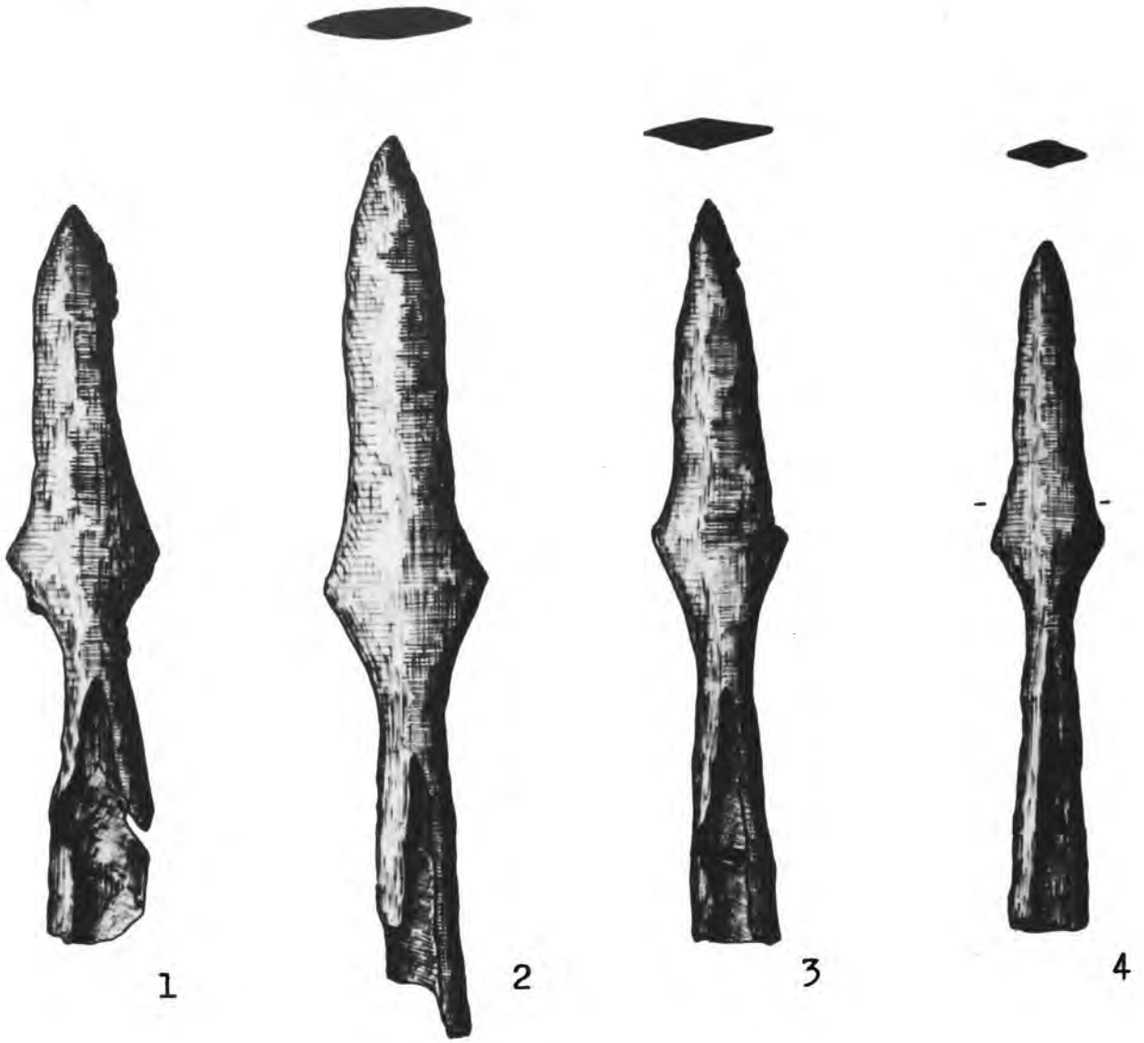
1. Olsén P. (1945) Die Saxe von Valsgärde, abb.179; Vedel E. (1886) Bornholms oldtidsminder og oldsager, p.159, fig.311; Salmo H. (1938) pp.164 ff.abb.47, taf.xxxiii(4).
2. Jacob-Friesen K. (1939) Einführung in Niedersachsens Urgeschichte, p.270, abb.352.
3. Lindenschmitt L. (1858-1911) I, taf.6(12); Liénard B. (18-81 Archaeologie de la Meuse, I, taf.35(7).
4. Böhner K. (1958) I, pp.150-1, taf.28(6).
5. Fett P. (1940) pp.31-2, fig.41-2.
6. eg. from Hade (Norrland): Hildebrand H. (ND) Den äldre Jernaaldern i Norrland, pp.84-5, fig.15-6.

Fig.39. Types of Group F1.

(1) Beddington (guild 1012(2). (2) Burford (bm 48 7-27 3). (3) Droxford (bm 1902 7-22 144). (4) Harnham Hill gr.9. (5) Figheldean. (6) Linton Heath gr.95. (7) Sleaford (bm 83 4-1 584).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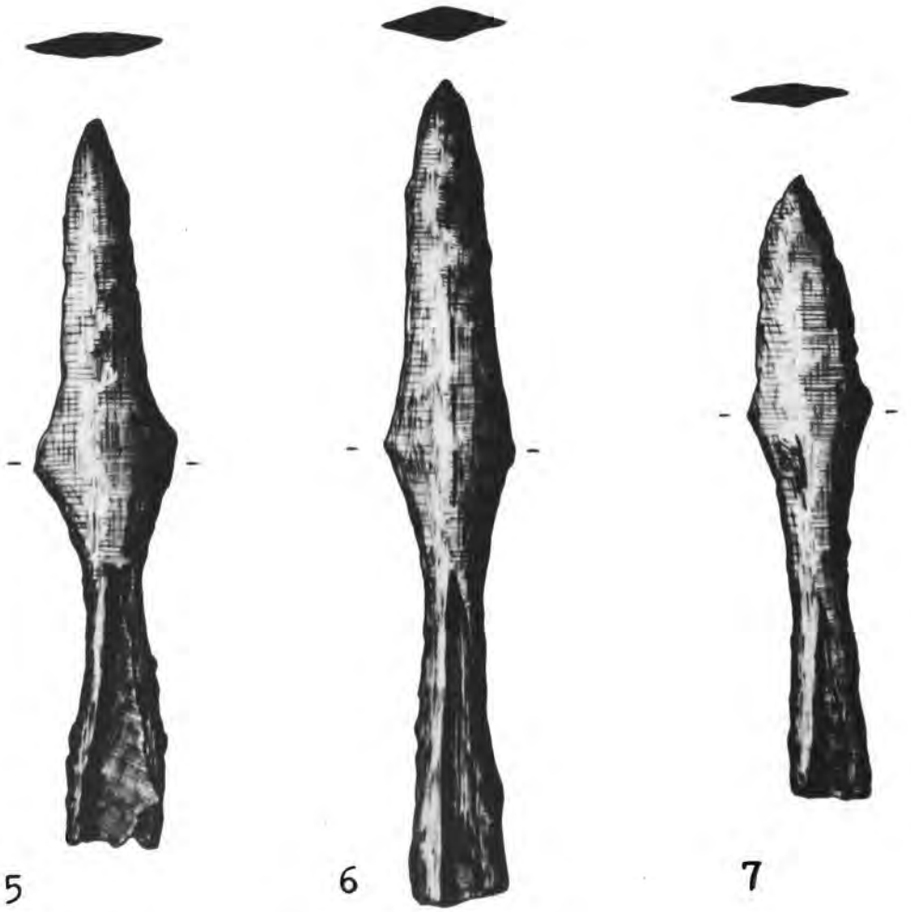
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extension of the concavity above the angle, forms a second pair of "wings" one above the other. This last type seems to have had no influence on insular development, arising not much before the beginning of the sixth century, and not apparently surviving its end, but forms a convincing example of regional variation.

The insular Anglo-Saxon development of this series is quite distinct from its continental counterpart, omitting the traditional midrib at the earliest stage, and replacing this in all probability by the curiously helicoidal section of associated series G.

Group F1, (fig.39), while as numerous as any other, is physically the smallest of the series, presenting each of the characteristic features merely on a smaller scale, with each subsequent group defined largely in increasing length and slenderness. The most familiar of Anglo-Saxon spear varieties, this first group is short and stout for the most part, lengths varying between 16 and 22 cms., and the proportions are much those of other small angular varieties, with the blade rather longer than the socket and junction piece together. There is little or no solid junction piece in most of the examples, with the split socket extending right up the spring of the basally placed angle. These are far smaller in size than any normally found in Scandinavia, and the profile is more exaggerated in its features too, with the width at the

angle in many instance, set off by a deep concave constriction, producing an almost "winged" effect, (fig.39(3). Upon the degree of this concavity, together with the relative height of the widest part of the blade, will depend the acuteness of the angle, which can vary considerably. The blade, occasionally lentoid, but usually lozengiform in section, emphasises this section towards the tip, rarely decreasing in thickness along the upper part of the blade.

More numerous as a group even than any of the B series, the number of dateable examples is consequently relatively large. That from grave 31 at Brighthampton was found together with a bronze-bound bucket and scabbard mountings decorated in Jutish style A, while perhaps equally early is another from Worthy Park grave 44, associated with a buttoned and carinated shield boss. From Linton Heath grave 80 came an example buried with a small biconoid buckelurne with panels of slashed lines, which is probably to be dated about 500 A.D.[1] That from grave 60 at Sarre was found with a small oval-looped bronze buckle with a shield-shaped plate on the tongue, and a claw beaker of Harden's experimental type (a) which he dates to the later fifth century.[2] Rather later from a grave

1. Information from Dr. J.N.L. Myres.
2. Harden D.B. (1956) p.139

at Fairford (March 4th) comes an example associated with a bronze-bound bucket and sheet bronze lugged bowl of the Frankish globular type. A similar sheet bronze bowl was found with that from Long Wittenham grave 36, and bronze-bound buckets with those from graves 9 and 60. Later still is probably that from grave 21 at Petersfinger, well equipped with: axe, low-cone shield boss and sword with a facetted bronze pommel with protomos, which may be placed some time after the middle of the sixth century. In addition, were deposited bronze strap-mounts and an iron oval-looped buckle with a square cloisonée set plate, of a Frankish seventh century type. That from Riseley grave 66 might be dated by the amethyst beads and little silver bells which accompanied the female half of the double grave. A slender and rather atypical example from a grave at Stourton was found with a sugar-loaf shield boss, which must be at least equally as late.

A large number of examples from Croydon, East Shefford, Highdown, Luton and Northfleet[3] might well reflect, in the general chronological contexts of these cemeteries, the relatively early origin of this group as indicated by associated evidence. The great majority, however are probably to be grouped generally some time in the sixth

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1. Croydon (bm 95 3-13 24 and 25); East Shefford gs.2,39 and (bm 93 7-16 121); Highdown gs. 5,20 and (worth(3); Luton (lut BL.102 33 (1 and 2) 53 33, and (12); Northfleet (maid 1,2,3,4 and 5).

Fig.40. Geographical distribution of group F1.

century, with few at all late.[1] While clearly not immediately derivative from continental migration period varieties,, the group must surely have originated in the earliest phases of settlement, with a relatively large number of early examples, and the majority centred in the sixth century. Only the rather atypical piece from Stourton can be clearly ascribed to later in the seventh century, and it seems likely that this group as a whole has been largely displaced by the end of the sixth.

The geographical distribution of this group (fig.40), is more or less that of the smaller of the angular B and C series, although considerably more dense on the ground. Major concentrations occur in the east Midlands in Cambridge and Bedfordshire, in thewest in Worcester and the valley of the Avon, widely in the upper Thames, and down into Sussex and Hampshire, (where curiously small pieces are found). Against this seems to be a "Saxon" pattern during the fifth and sixth centuries, with noticeable absences in the Anglian north, East Anglia and Kent. One or two

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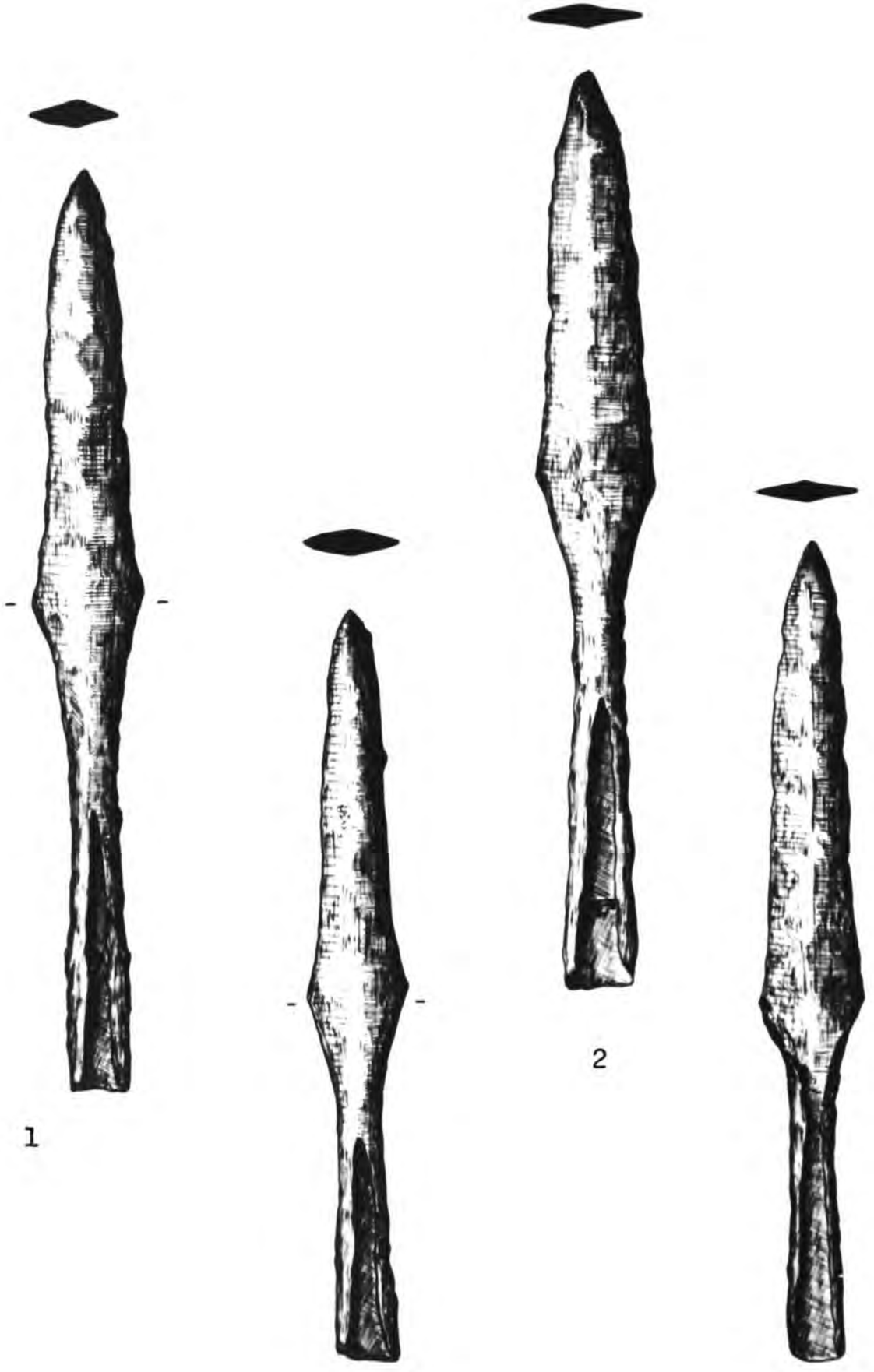
1. For instance, from: Abingdon gr.4; Baginton (cov(4,9 and 14); Barrington A (bm 76 2-13 52); Bidford gr.183 and (stræt 9, 10, 13 and 15); Brighthampton gs.44 and 50; Cassington gr.1; Chessel Down (bm 69 10-11 31, 33 and 35); Droxford (bm 1902 7-22 97, 103,115 and144);(fig.39(3); Fairford gr.23; Harnham Hill gr.9b (fig.39(4); Kempston (bm 91 6-24 91, 96, 98 and 101); Linton Heath gs.23,95 and (camb 48 1642(1,2 and 4)(fig.39(6); Long Wittenham gs.56,81,112,138,168 and (bm(3); Mitcham (king L27) and 30); Morecombelake (dorch 1927 6-1 (1 and 5); Petersfinger gs.3,21,58, and 59; Riseley gr.70; Sleaford (bm 83 4-1 568, 577, 583 and 593)(fig.39(7); Worthy Park gs.4,5,46,71 and 84.

Fig.41. Types of Group F2.

(1) Barrington (bm 76 2-12 50).
(2) East Shefford (bm(1).
(3) Kelvedon.
(4) Nassington gr.23.



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are found in Saxon cemeteries west of the Medway in Kent, at Northfleet or Horton Kirby, while that from Sarre grave 60 is probably to be accounted for by the earlier "mixed" phases of settlement to the east of the kingdom. Interestingly, however, some three examples apparently survive from Chessel Down.

Group F2 (fig.41), presents much the smae basic profile as that of the former group, save that the whole is rather more slender, with usually a longer blade in proportion, and the angle more obtuse, the concavity being rarely pronounced. Lengths vary between some 20 and 28 cms., thus overlapping slightly with both former and subsequent groups; and thus group F2 stands in relation to F1, much as B2 to B1.

As large a group numerically as the former, this too includes a useful series of associated examples. At Darent, Worthy Park grave 22 and Winterbourne Gunner grave 4, they were found with decisively carinated and buttoned shield bosses of an early looking variety; and the last of these was accompanied too, by a bronze buckle with a heart-shaped loop which probably belongs to the earlier sixth century. From grave 2 at Linton Heath came an example together with a bow-shaped Roman brooch, similar to another fragment from grave 10 at Abingdon. That from grave 25 at Abingdon, however, must certainly be put later, found together with an oval iron buckle-loop, and a low-cone shield

boss. Oval-looped iron buckles similarly came from grave E at Alfriston, together with a now unidentifiable pot. An example from Kelvedon (fig.41(3) was found with an early looking shield boss, a small pot with corded and line decoration of an early kind, and a D-shaped iron buckle. Potsherds from a large plain pot with an everted rim, were also found from the grave at Blewburton Hill, together with iron oval-looped buckles from a wood-bound belt-piece, and a bone pendant. An example from Fairford (ash 1961 3) was found together with a low-cone shield boss, like those from graves 82 and 92 at Long Wittenham, which were also accompanied by small bronze-bound buckets.

An example from Nassington grave 23 (fig.41(4) had the E2 sort of burred-over upper socket which might well be indicative of a relatively early date. Generally, the remainder of this large group might be considered on the grounds of their general context to cover just the range indicated by the associated pieces, with the majority bulking relatively early or from the sixth century,[1] with just a few coming

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1. Eg. from Alfriston (tor 924 60.2), Abingdon (gs.11, 22 and 52, Alton (alt 1959 103), Alveston gr.73 and (strat 5 and tr), Baginton (cov.(28), Barrington A (bm 76 2-12 50, 51, and 60), (fig.41(1), Bidford (strat (2, 3, 5, 6), Bishopstone (ayl 9-80), Brixworth (north d.244, 259 and 261), Broadway Hill, Catterick, Droxford (bm 1902 7-22 101, 108), Duston (north d 1955-6 382, 396, 397 and 399), East Shefford (ash 1955 352, and bm(1) (fig.41(2), Ewell (lm 22 176/2), Friskney (farn 1382(2), Long Wittenham (gs. 48, 179 and (bm 62 6-13(a), Luton (lut 101 33), Minster Lovel, Mitcham (camb 58 20, king L33 and 34, and lm 56 106/12), Northfleet (maid(7) and grav(4), Sleaford (bm 83 4-1 572, 573 and 574), Soham (bm 76 2-12 57), Ruskington (gran 84(2) and linc 35 56), Worthy Park gr.95, Rainham (1).

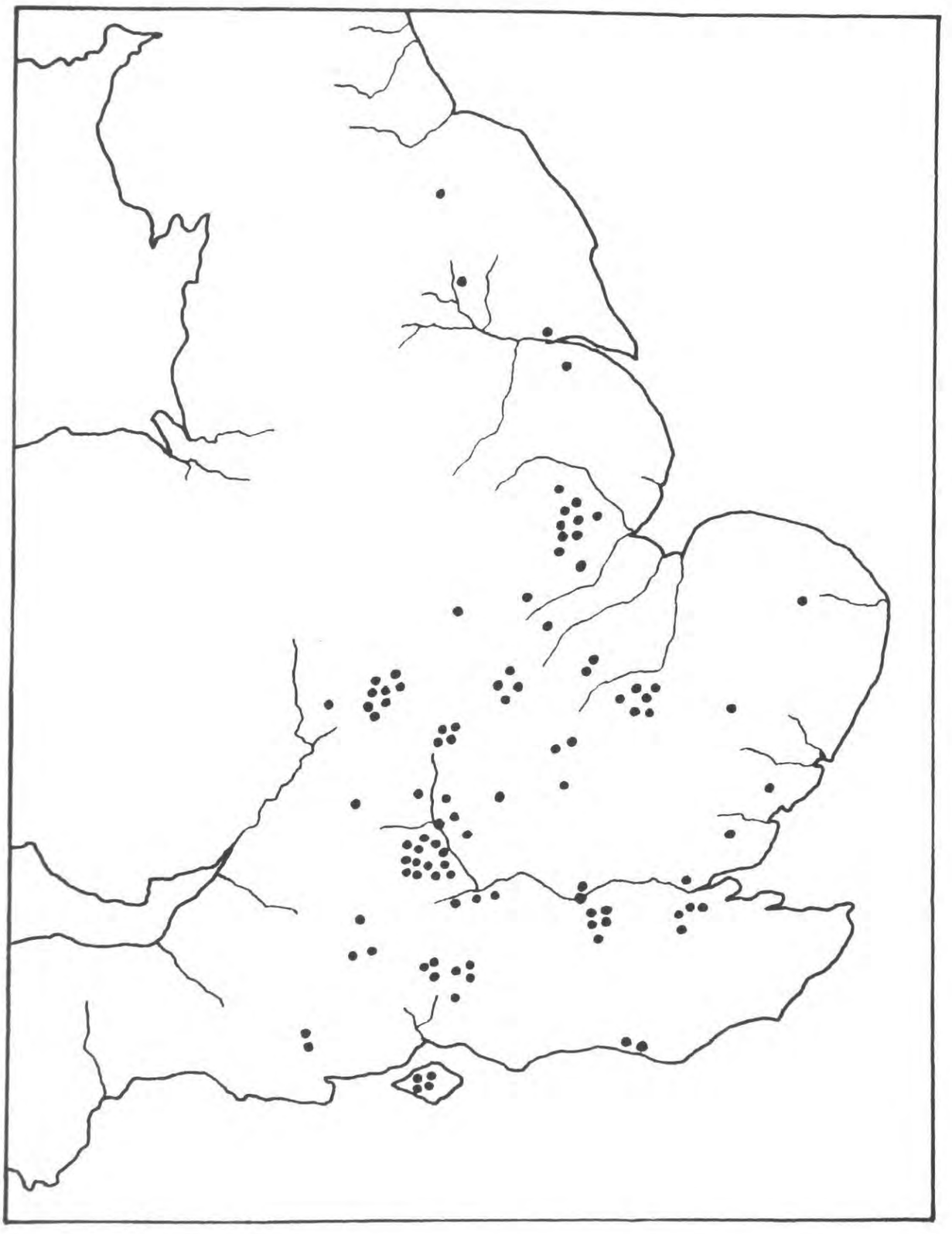

Fig.42. Geographical distribution of group F2.

possibly from the earliest seventh century.[1]

The chronological range of this group then seems much the same as that of the former group F1, but with fewer distinctly early examples, and the majority of the remainder probably late in the sixth century, it is possibly just later overall, although by no means extending clearly into the seventh century. It is perhaps thus merely a development in size of the former group, as more material becomes generally available with established settlement.

The geographical distribution of this group too (fig.42), while rather more widespread than formerly, presents many of the features noticed of group F1. Major concentrations appear round the Wash rivers, the Avon in the west, and the Upper Thames and Hampshire; and similar groups occur in the Saxon settlements of the middle and lower Thames west of the Medway, and again from Chessel Down. Single examples are found now, however, in the Anglian areas of Suffolk, Norfolk and Deira, although still no example has been found from east Kent. Of those from the north, that from Wilfholme on the Humber is possibly late, with the additional feature of languets.

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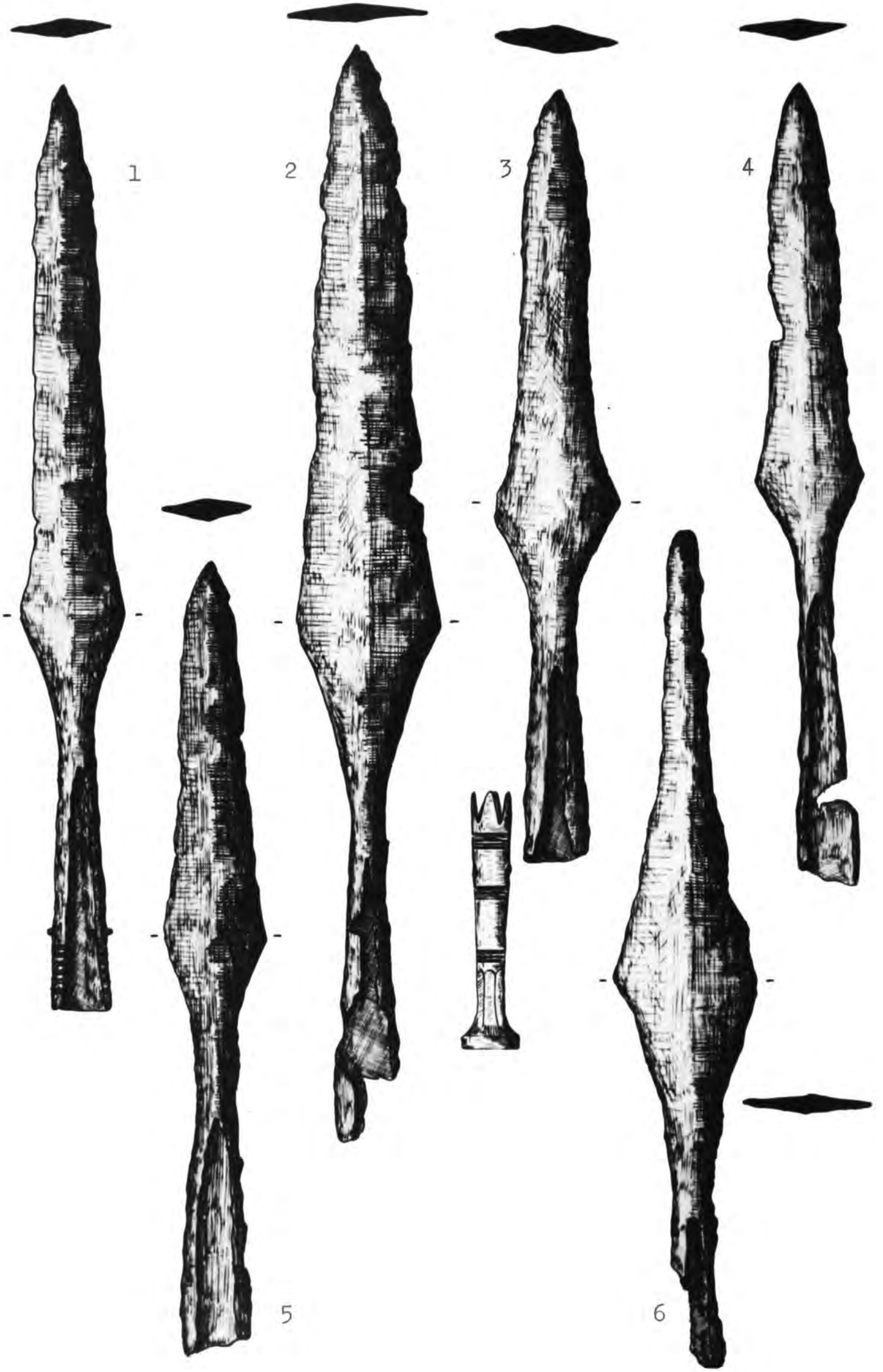
1. Possible examples from the seventh century include those from Chessel Down (bm 69 10-11 27, 28, 29 and 34), Riseley and Kempston (bm 91 6-24 88 and 92), but each of these might well be rather earlier in fact.

Fig.43. Types of Groups F3 (1-5) and F4 (6).
(1) Bourne Hill. (2) Broadchalke gr.1.
(3) Long Wittenham gr.26.
(4) Staxton gr.83. (5) Harnham Hill gr. 24. (6) Long Wittenham (bm(6).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Group F3 (fig.43(1-5), comes closest in the profile of certain examples, like that from Broadchalke (fig.43(2), to the sixth century Scandinavian variety, although without in any example the midribbing characteristic there, and universally presenting the insular feature of sockets cleft up to the solid junction. Much more slender for the most part even than those of group F2, and with distinctly long blades in proportion to the socket and junction together, they vary in length between some 26 and 35 cms. overall. As previously, the concave curve above the angle of the profile, the characteristic of the F series, is occasionally subtle.

As with groups F1 and 2, the large numbers of this group provide a useful number of dateable pieces. Examples from graves at Frilford (ash 1886 1425) and Portslade (hove 80 1931) were buried with shield bosses of an early sharply carinated kind, while that from Linton Heath grave 7 was associated with one of the low-cone variety. That from grave 13 at Brighthamton was found with a similar low-cone shield boss, together with an oval-looped iron buckle, and that from Petersfinger grave 60 with a low-cone shield boss, a D-shaped iron buckle loop, and a bronze-bound bucket. That from Long Wittenham grave 91 was also found with a low-cone shield boss and a bronze-bound bucket; that from Little Wilbraham (bm(1) simply with a bronze-bound bucket. A similar bucket came with that from grave

26 at Long Wittenham (fig.43(3) with in addition a sheet bronze lugged Frankish bowl, and a shallow sheet bronze dish possibly similar in date. From grave 36 in the same cemetery came an example together with a similar sheet bronze lugged bowl, and another spear of group F1; and that from grave 146 with the remains of a small black eathenware vessel which is probably not to be placed later than about 500 A.D.[1] The female associations in the double grave 37 at Nassington were sheet bronze wrist-clasps embossed with a trellis of dots, two oval-looped iron buckles, and a pair of trefoil headed small-long brooches decorated with engraved circlets belong to Leeds's late class (k ii).[2] From grave 3 at Reading comes an example found together with a plate bronze disc brooch engraved with a quincunx of circle-and-dot motifs.

One example from East Shefford (bm(4) and others from Luton (lut BL 33 41, 34 41, and 137 32) may possibly be ascribed to the relatively early context of these cemeteries, although another from Luton (lut 4()3() with languets might well be a little later. The vast majority of the remainder can probably be grouped together

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1. Information from Dr. J.N.L. Myres
2. Leeds E.T. (1945) pp.14, 91.

Fig.44. Geographical distribution of group F3.

some time in the sixth century or earliest seventh,[3] with only a small number probably more fully from the seventh.[4] The general chronological range of this group, therefore, seems to be much that of the former group F2, beginning before the middle of the sixth century, and with the bulk of examples from that century, though with rather more than the former group surviving clearly into the seventh, albeit still only sporadically. Like each of the two previous F groups, this group can be seen to decline during the period for which we have reasonably reliable evidence.

The geographical distribution of this group however (fig.44), presents a pattern distinct in one respect from the former groups. Major concentrations are found in the same areas of the Midlands and Upper Thames, with a

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3. For instance from: Abingdon gr.33; Alveston gs.34 and 39; Aston (bm(2); Baginton (cov(6) and 19); Barrington gr.3; Broadchalke (fig.43(2); Bifrons gr.43 and (maid 873, 892, and 620 1954 24); Brixworth (north d.267 and 269); Brooke (bm 70 11-5 29); Cassington (ash 1951 126); Cesterford (leic 2 1946(4); Chessel Down (bm 69 10-11 24); Droxford (bm 1902 7-22 98 and 100); Duston (north 382); Ewell (lm 32 176/1); Fetcham (guild 5947); Harnham Hill gr.24 (fig.43(5); Faiford (glos A3660); Heyford Purcell (ash 1893 196); Howletts (bm 1936 5-11(); Icklingham (bm 1932 10-10 2); Linton Heath (camb 48 1643(1); Long Wittenham gr.61; Little Wilbrham (camb 48 1641(2); Luffenham (oak(2); Lyminge gr.4; Kempston (bm 91 6-24 90); Mitcham gs. 207, 228, (camb 58 6) and (king 32); Morecombe-lake (dorch(3); Nassington gr. 26 and (pet(4); Purton (ash(); Riseley gr. 21; Sleaford (bm 83 4-1 559, 560, 562, 563, 564, 567, 569, 570 and linc 816-23 09(4); Stapenhill (burt(2); Staxton gr. 83 (fig.43(4); Wheatley (ash(3); Woodston B. (pet L549, 551, 554, and (3).
4. Eg. Faversham (bm 994 70); Greenwich gr(6); Sarre gs.3 and 10. Three other pieces are included with the Faussett collection of east Kentish material (liv(31, 37 and 48).

general scatter over the south, but now there appears the significant innovation of large numbers from east Kent, although some of these, like those from Bifrons, form rather large and atypical members of the group. In respect of distribution, however, this group as a whole forms a valuable link with the smaller groups F1 and 2 on the one hand, and the larger size and distinct proportions of group F5 on the other.

Fig.45. Geographical distribution of group F4.

Group F4 (fig.43(6), comprises a small number of spear-heads, which form in reality, no more than a subsidiary variant of the former group. Ranging in size between more or less the same lengths, from 25 to 31 cms., and with much the same proportions of blade to socket, the distinguishing feature occurs in the nature of the profile. Instead of the former ogee profile: a distinct concave curve above the angle merging into a convex curve in the upper part of the blade towards the tip, the upper part of the blade is less tongue-like, and more tapering, with consequently the concave curve out of an increasingly obtuse angle, less distinct, which in some cases merges into an almost straight line to the point.

There are no usefully associated examples. Most might be dated either to the sixth century, or the earliest part of the seventh, like those from: Bourne Hill (sals 1772 98 50) Droxford (bm 1902 7-22 94); Long Wittenham (bm(6)(fig.43(6); Mitcham grave 63; Norton; or Sleaford (bm 83 4-1 591). Possibly from the seventh century comes a single example included with Faussett's east Kent material (liv(6). A single possible continental parallel comes from a south German grave dated by Werner to the second half of the seventh century,[1] but the group is probably best linked chronologically, as formally, with F3.

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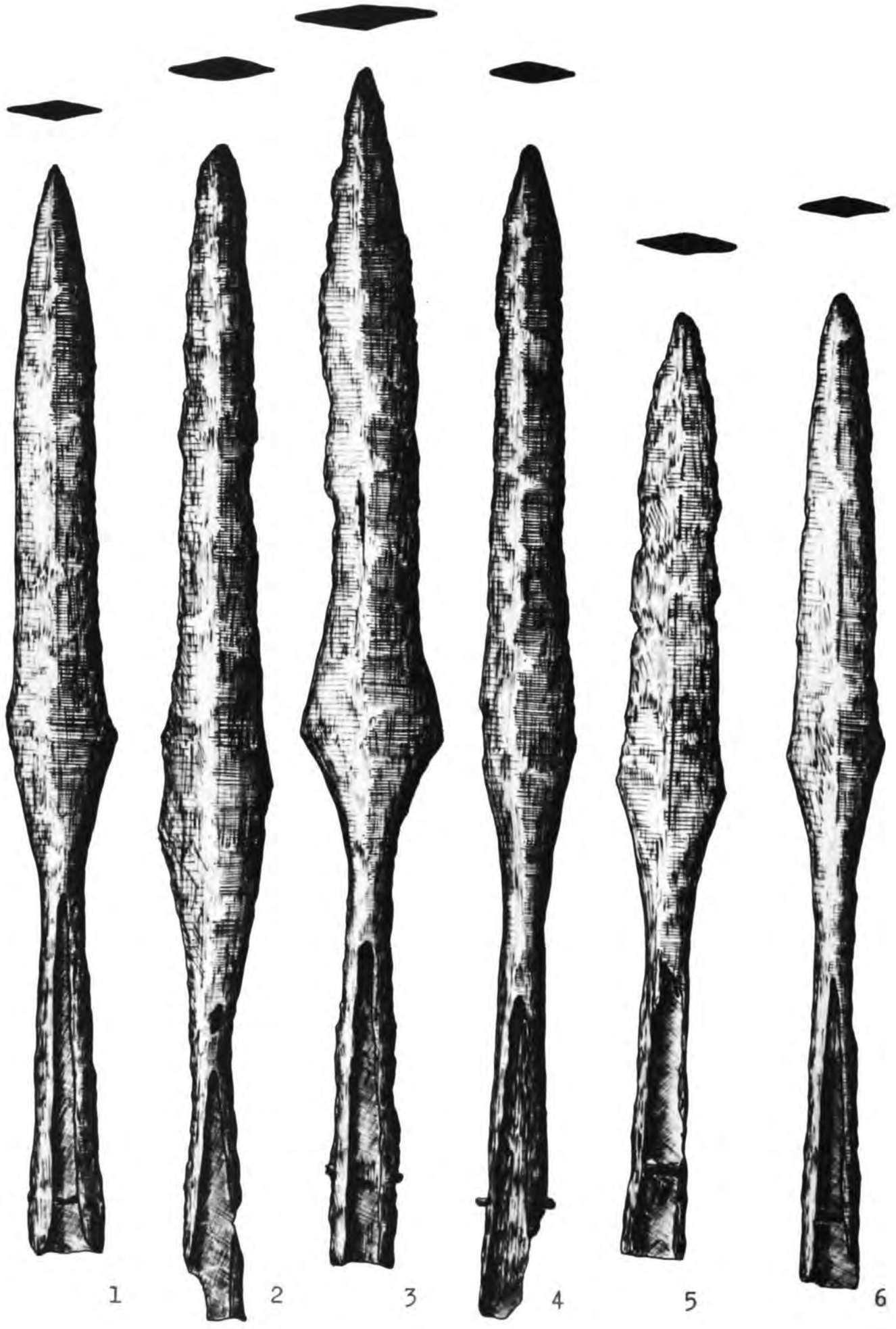
1. Pfahlheim grave 4: Werner J. (1935) p.100 taf.29.

Fig.46. Types of Group F5.

(1) Hinchingbroke (camb 48 1672).
(2) Long Wittenham gr.67. (3) Sarre gr.39.
(4)Lyminge gr.5. (5) Fareham.
(6) Barrington (bm 76 2-12 49).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Geographically, (fig.45) as chronologically, the group remains undistinguished, and is again best referred as merely an element of the previous group.

Group F5 (fig.46), is rather less numerous than any of the groups F1-3, but presents distinct features from other of the F series as a whole. The largest in size, they vary from between 35 and 40 cms. for the most part, with the occasional example like that from Bifrons (maid 873) up to 55 cms. But the proportions appear to have remained those of group F1, with the blade just a little longer than the socket and junction pieces together. The blade, except for the extraordinarily extravagant piece mentioned from Bifrons, is relatively slender and narrow compared with the main F series, with the concavity of the profile sometimes rather subtle, tending in these instances towards an overlap with certain examples in group B3. Or without the convex curve towards the point these might have overlapped with group E4.

Only two usefully associated examples occur. That from Bifrons grave 43 was found with a belt-suite made up of an oval-looped buckle with an expanded tongue and rectangular plate, and rectangular mounts decorated with horizontal lines and corner studs. The example from Long Wittenham grave 67 (fig.46(2) was buried with a tiny oval-looped bronze buckle with a plain rectangular

folded plate. That from Sarre grave 39(a) came from a double grave, the other of which was dated to the late sixth century.(fig.46(3). There are no pieces likely to be at all early, and the majority of the group can probably be ascribed roughly sixth century contexts.[1] More probably from the seventh century however, are those from Faversham (bm 83 12-13 654, 655 and (1) and Holywell Row grave 38. In addition may probably be accounted some five examples from Faussett's east Kent collection: (liv(14, 15, 24, 43 and 57).

The chronological range of this group is rather distinct therefore from earlier groups in the F series, for although as before, large numbers seem to figure in the later part of the sixth century, there is no attestedly early example, and larger numbers than hitherto survive into the seventh. At the same time, however, there is no evidence that this group more than any other of the series, survives, modified or not, to take a place among the attestedly late groups.

The geographical distribution of this group (fig.47) is more convincingly disparate, however. By far the most

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1. For instance from: Barrington A gs. 18 and 22a; and (bm 76 2-12 49)(fig.46(6); Bifrons (maid 620 1954 24 and 26, 873, 890 and 892); Brixworth (north d.281); Caistor gr. 10; Chessel Down (bm 69 10-11 21); Driffield (york 408 47); Droxford (bm 1902 7-22 99); Duston (north 385 1955); Kempston (bm 91 6-24 83, 84 and 85); (lyminge gs.1 and 5 (fig.46(4); Market Overton (oak(11); Marston St. Lawrence gr.30; Ramsgate (19 and 22); Sleaford (bm 83 4-1 554, 556, 557 and linc 816-23 09(6); Woodston (pet L550 and camb(12).

Fig.47. Geographical distribution of group F5.

significant concentration of this group, lies in east Kent, with other largish groups about the rivers draining into the Wash, but with otherwise merely single examples in the south, on the Thames and up to a solitary outlier in the rather a-typical piece at Driffield. This dominantly east Kent/east Midlands axis, is merely a recurrence of the pattern observed among the larger of the B groups, and is difficult to explain unless accounted for by a more stable society in these old-settled regions, with more material available, being prepared to adopt the more extravagant or unusual forms of insular developed groups.

Series G and H are to be closely related although differing significantly in profile. The former are similar in most respects to those of series F, most of the groups having a concave curve above the angle. The latter present variously foliiform blades on shortish sockets. Both series, however, share the common feature of a helicoidal, or more frequently, stepped, blade-section which for its entire length is divided just left of the centre line into two plane surfaces, with the left half[1] universally depressed on either face.

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1. i.e. with the blade uppermost. The single exception to this rule, a fragmentary piece from the City of London (lm 29 94/13) corresponds with the broad profile of group H1, but differs in having the right hand half depressed instead. The function of the blade would have been served just as well, however, and the example is significant only from a technical point of view, for although well made, it is likely to have been the work of a smith unused to this technique, in view of the careful and highly conservative methods characteristic of the forge.

This feature was noticed by Akerman as long ago as 1853 in commenting on the well known example from Harnham Hill, when with reference to the Hottentot assegai, he introduced the erroneous suggestion that this feature was intended to achieve increased velocity and a rotary motion when used as a missile.[1] This supposition was adopted by all subsequent commentators, supported by Berthelot[2] referring rather irrationally to the much later line of Ekkehardus: sed illam (hastam)/Turbine terribilem tanto et stridore volantem,[3] and Keller, referring equally without argument to the recurrent OE phrase: gares fliht.[4] This was universally accepted at the beginning of the twentieth century,[5] and was only questioned at all by Baldwin Brown in 1915.[6]

These spear-heads are not in fact so angled as to rifle if thrown, and as in African types,[7] this characteristic feature is probably more simply structural in intention. A shallow helicoidal section is found on

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1. Akerman J.Y. (1853) pp.276-7.
2. Berthelot A.A.L. (1893) p.22.
3. Waltharius Poesis, 1288-9.
4. Keller M.L. (1906) pp.30-1.
5. Smith R.A. (1902) VCH. Northants. I, p.232.
6. Baldwin-Brown G. (1915) III, p.237.
7. This sectional feature is more or less universal in African spear and arrow-heads, but has always been regarded as structural, and symptomatic of manufacturing techniques involved in using a round stone anvil, with no evidence whatever for rotation in flight. (Information from Mr. WB. Fagg, British Museum Department of Ethnography).

rare occasions at all periods and on all manner of weapons,[1] representing a simple and unsophisticated method of increasing longitudional strength (much as corrugated sheet metal is strong)[2] while simultaneously economising on material.[3] Usually distinctly stepped in section with shadowing thus down the central line of the blade, these forms provide both a visual impression and very real substitute for the salient midribbing of traditional patterns which had been generally abandoned with insular settlement. The earlier phases of this series: groups G1-3 and H1 especially, present this feature in particular profiles which had traditionally been equipped with the expensive and difficult feature of midribbing in pre-migration times, so that these might very well form a convenient development out of the earlier forms. Some examples, like that from Greetwell Hall with languets and binding rings, or the elaborate piece from Merrow (fig.48(4) with inlaid balustering, are very clearly not intended as missiles. Far too much trouble has been taken in the manufacture of these

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1. For instance, on south German arrow-heads dated to c.300 A.D Werner J. (1938) Ein frühalamannische Grabfunde von Böckingen, Württemberg; Germania XXII, p.114, abb.1(2-3).
2. See section IV, p. 426.
3. An important factor in early Wessex where these are especially found, see section IV, p.340.

examples at least, to be chanced as a dart and possibly lost. In fact, the only acceptable evidence for any missiles rotating on their axes comes with the fourteenth century type of quarrel known as the vireton.[1]

While unrecognised by continental commentators such as Böhner and Salmo, the occasional helicoidal-sectioned foliiform blade does occur in north-west Europe, although the feature is often only tenuous. Single atypical examples are recorded from the cemeteries of Germanic laeti in northern Gaul at Vert-la-Gravelle and Homblières,[2] although the first of these has a cleft socket and might very well be rather late, while from the later fifth or earlier half of the sixth century comes a small group from: Rhenen,[3] Haillot,[4] Pry,[5] Bessungen,[6] Schwerin[7] and Krummensee-Potterburg.[8] In addition, and also to be placed some time in the sixth century, come two isolated, singular and atypical

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1. NED. sub vireton.
2. Lantier R. (1948) Un cimitière due IVe siècle au "Mont Auge" (Vert-la-Gravelle, Marne); L'Antiquite Classique, XVII, p.376, pl.II(3); Pilloy J. (1886-1912) Etudes sur d'anciens lieux de sépultures dans l'Aisne, p.232.
3. Amersfoort Museum (Information from Dr. Anne Roes.)
4. Breuer J. and Roosens H. (1956) Le cimitière franc de Haillot; Ann. Soc. Arch. Namur, XLVIII, p.202, fig.5(8).
5. Namur Museum, unregs.
6. Lindenschmitt L. (1880) I, pp.173-4, fig.69.
7. Sprockhoff E. (1934) Ein germanisches Grabfund der Völkerwanderungszeit aus Schwerin (Mecklenburg); Germania, XVIII, p.43, abb.1(3).
8. Genrich A. (1954) no.105, taf.19.

examples from much further north and south. From Mindresunde (Sogn og Fjordane) Fett notes an unparalleled example featuring the blade of our group H2, but on a lengthy closed socket.[1] And from Grossachsenheim (Württemberg)[2] comes an example with a blade similar to that of our group G4, but also on a lengthy closed socket and with the blade decorated in "Vendel-type" etched patterns, which perhaps belies manufacture in the south.

These few scattered and variable forms by no means represent a significant or clearly definable continental group, however, and those general commentators who have noticed them are obliged to refer to the regular insular groups for parallels.[3] The sudden appearance of this continental group without either antecedent forms or subsequent development, poses an unresolved problem. It is possible, that with economy in mind, they form nonce instances merely coincidental with insular development. They might however be better accounted for as exports from England to the continent, perhaps carried by those Angiloi and Phrissones whom Procopius records as leaving England in large numbers during the first half of the sixth century, encouraged by the Frankish king Theudebert to settle in the emptier

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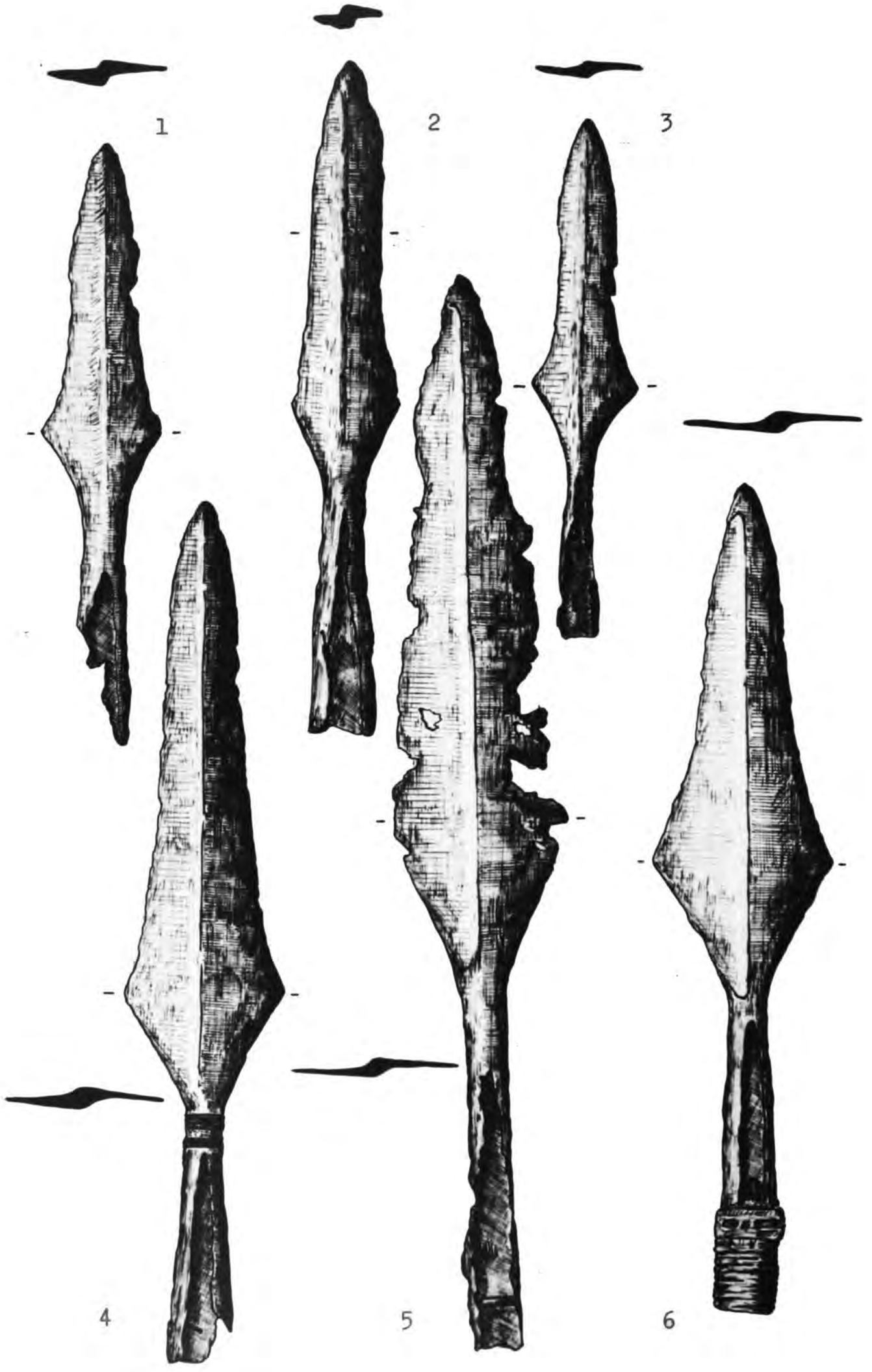
1. Fett P. (1940) p.28, and text figure.
2. Stuttgart Mus. regs. 49/22.
3. Eg. Lindenschmitt L. (1880), loc. cit.; Fett P. (1940) loc. cit.

Fig.48. Types of Groups G1 (1-3) and G2 (4-6).
(1) Aston (bm 82 2-20 2). (2) Baginton (cov(12). (3) Kempston (bm 91 6-24 100). (4) Merrow. (5) Partney. (6) East Shefford (ash 1955 351).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parts of his territories.[1] The form is not characteristically Anglian in insular contexts, however, but if this re-migration was an ultimate effect of the set-back to West Saxon expansion of which Mons Badonicus may have been symptomatic, the geographical distribution of this pertinently foliiform H series centred in the upper Thames would suit the event admirably. Examples from Norway and Württemberg might then be explained as appropriately atypical forms for the distributional periphery of this curious class.

The typological origins of this series is perhaps best seen in relation to other insular pseudo-midribbed groups of the K series. In group K3 and 6 the lunate fullering characteristic of that series has widened out to almost fill the entire left hand half of blades which are comparatively broadly foliiform and concave angular in profile respectively. Similarly, the characteristically experimental groups G1-3 might be considered merely the logical development of group K6, and H1 that of K3 or A2.

Group G1 (fig.48(1-3), smallest in size of the series, varying from 20 to 25 cms. in length, conform for the

1. De Bello Gothico, VIII, 20; and cf. the independent Germanic tradition included in Translatio Sancti Alexandri (Pertz G.H. (1829) MGH. Scriptorum II 673-81), associated with which might be Adam of Bremen's account of an AS settlement of Brabant (Gesta Hammaburgensis, I(3). And cf. the curious Lex Angliorum et Werinorum. Personal and place name evidence has been adduced by Ehmer H. (1937) Die sächsischen Siedlungen auf dem französischen Litus Saxonicum, p.45 ff.; and Leeds, E.T. (1913) pp.93-5 draws attention to a small series of insular looking cruciform brooches. It is proposed to elaborate this account in a separate paper.

greater part in size, proportion and profile, with the smaller examples of group F2; the blade extended as a tongue defined by concave curves above a basally placed angle; and taking up rather more than half of the whole length. The only significant difference appears in the distinctive section of the blade, either firmly stepped, or more tenuously helicoidal, which is regular throughout the length of the blade.

The only usefully associated example, is that from grave 33 at Worthy Park, which was found with a carinated studded shield boss of early type; and the majority seem to be ascribable on general grounds merely to some date in the sixth century like those from: Brifrons (maid 907); Frilford (ash 1873 1433); Haslingfield (bm(3); and Kempston (bm 91 6-24 100) (fig.48(3). Others seem likely to emanate from the later half of the sixth century, or even the earlier seventh, like: Aston (bm 82 2-20 2) (fig.48(1); Baginton (cov(12) (fig.48(2); Burn Ground grave 10; Chessel Down (bm 69 10-11 30); Droxford (bm 1902 7-22 118); and Peterfinger grave 27. The chronological range of this group, is comparable, like the profile, with that of groups F1 and 2; beginning in the sixth century, probably in the first half, and more or less confined to that century, with no piece clearly surviving into the seventh.

The geographical distribution of the rather small numbers of this group (fig.49), is reminiscent of the sixth

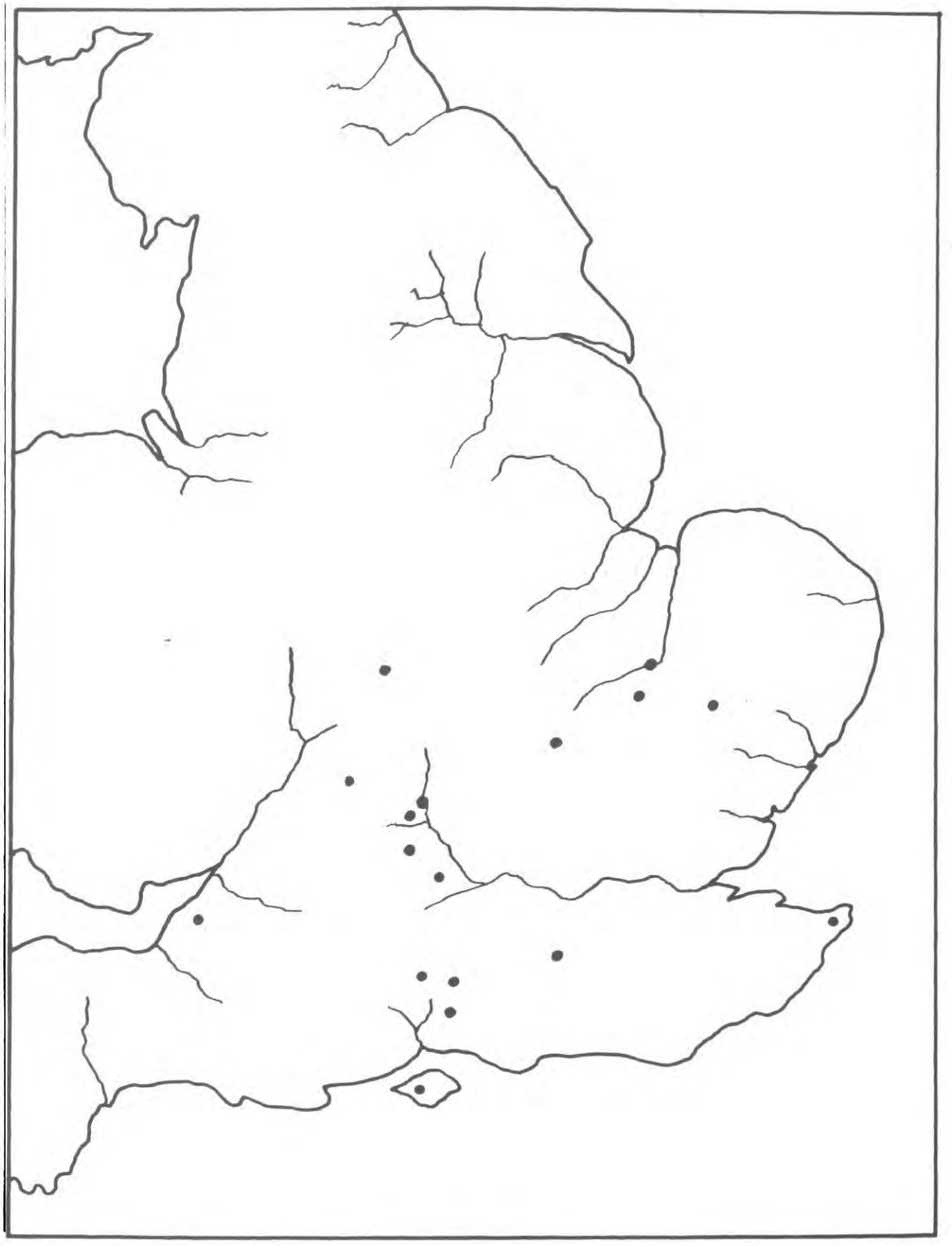


Fig.49. Geographical distribution of group G1.

century "Saxon" pattern already noticed for other groups like F2. The majority are scattered in the upper Thames and Hampshire, with a single outlier far to the west at Worle (Somerset), while one or two occur in the east Midlands. That from Bifrons might well be considered to have come from the earliest 'mixed' phase of the settlement of east Kent, although another remains from Chessel Down. Similar instances of detail occur in the distribution of the formally comparable group F1.

Group G2 (fig.48)(4-6), representing a larger more exaggerated version of G1, stands in the same relationship to group F3, as G1 did to F2, measuring roughly the same sort of sixe, lengths varying between 26 and 35 cms., with the occasional example something over, like that from Greetwell Hall, which with languets reaches 42.5 cms. The concavity in profile above the angle of the blade is often more pronounced than in the comparable F group, however, because of a greater breadth at the angle of the blade.

No very clear associations now survive for this group, but that from Frilford grave 1 was found with a shield boss of carinated type, and an iron buckle which was probably kidney-shaped. Probably those too from grave 4 at Highdown, Bishopstone (ayl 8.80), East Shefford (ash 1955 351) (fig.48(6) might be ascribed to the relatively

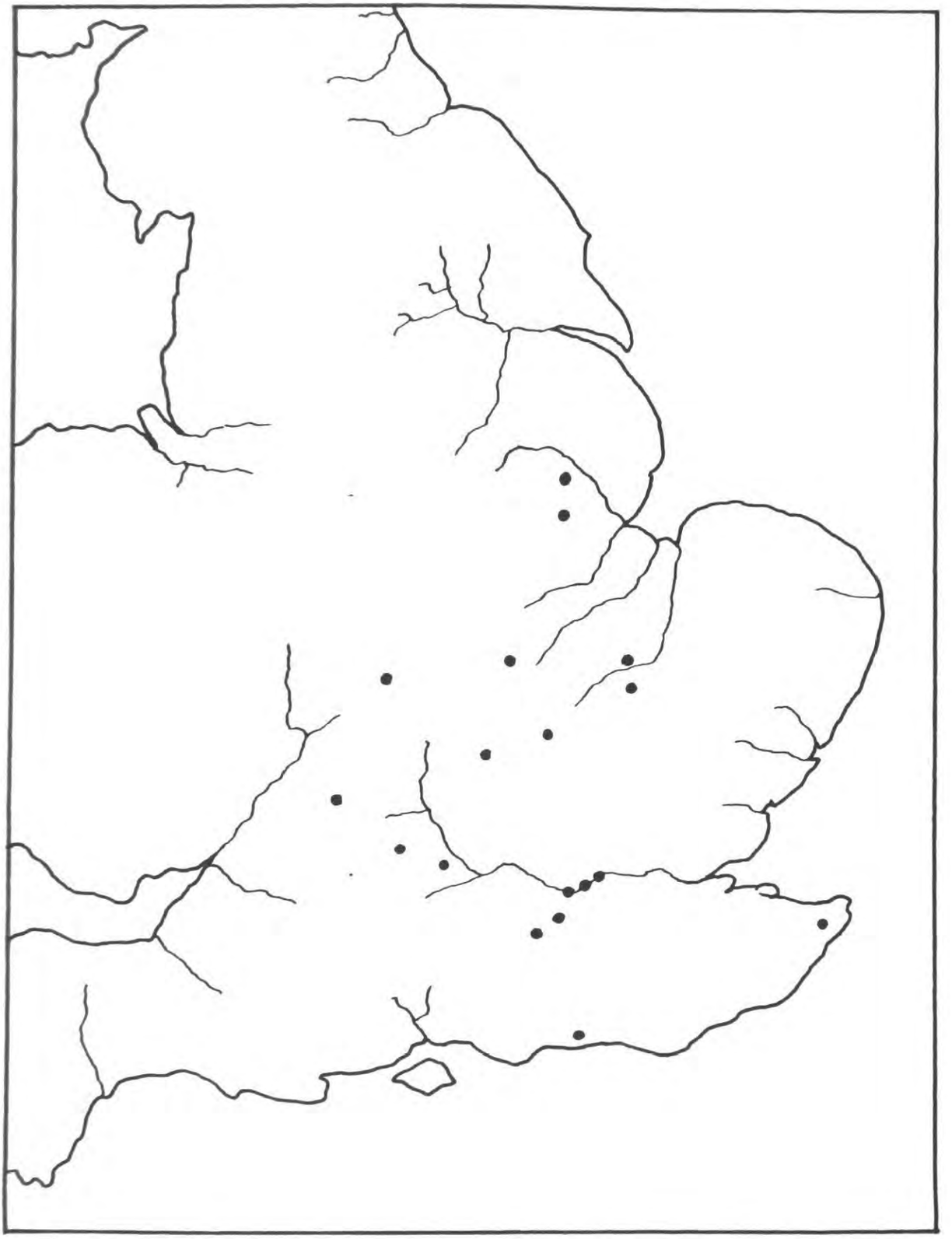


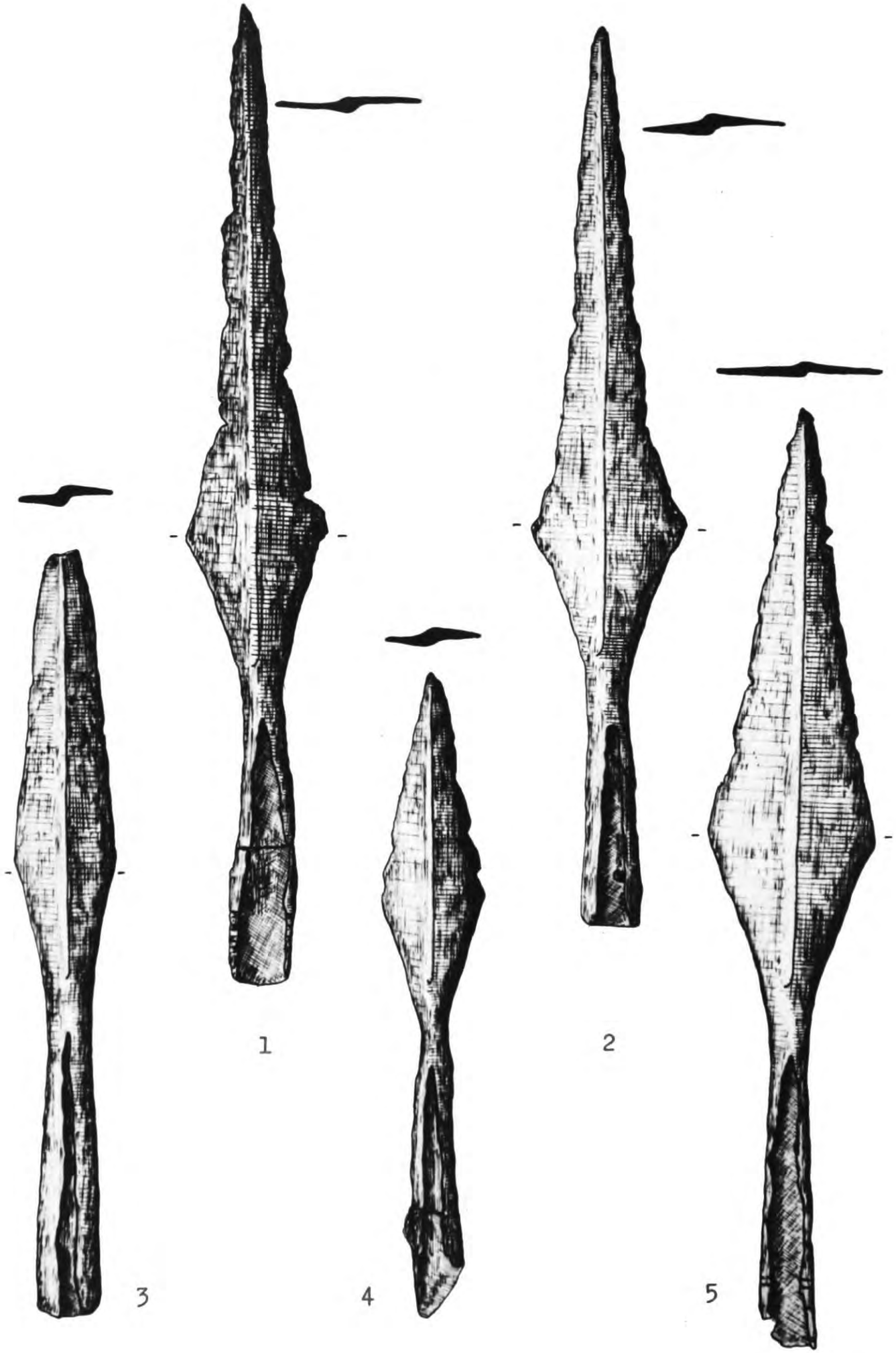
Fig.50. Geographical distribution of group G2.

early contexts of these cemeteries, but all of the remainder are probably to be placed merely some time in the sixth century,[1] with only those from Aston (bm 87 11-12 7) and Partney (1) (fig.48(5) possibly from the earliest seventh century.[2] The chronological range of this group therefore is similar to that of the physically comparable group F3, largely confined to the sixth century, like the former group G1, but with more evidence for an origin soon after the beginning of the settlements. It is possible thus, that the series was initiated, out of group K6, in Group G2 the longer ones most obviously needing longitudinal strengthening, and then extended to other smaller spears with the same profile. The group as a whole certainly exhibits a large number of "experimental" features for its size: a tang replacing socketing at Linton Heath; languets at Greetwell, Kempston and Nassington. The last of these has the indications of similar junction balustering as that at Merrow (fig.48(4) which, with a concave electrum band inlay, might be indicative of a later date; although no example can clearly be shown to have come from the seventh century.

The geographical distribution of this sparse group (fig.50), much as might be expected, follows that of the

1. For instance, from: Beddington (guild S9879); Fairford (ash 1961 31); Linton Heath (camb 48 1535); Little Wilbraham (camb 48 1636c); Merrow 'fig.48(4); Nassington (oundle).
2. That from Kempston (bm 91 6-23 93) is as likely to belong to the early as the late group of graves from this cemetery

Fig.51. Types of Groups G3 (1-2) and G4 (3-5). (1) Burh Ground gr.6. (2) Harnham Hill (bm 53 12-14 3). (3) Wallingford gr.22. (4) Fairford (glos A3661). (5) Alton (alt.oc.925).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former group, postulated as a largely later development, So far as it is possible to discern from the none too dense scatter, the axis is again that from the Wash to the Upper Thames, with rather more than before in the east Midlands, and with the exception of single pieces in Surrey and early on the Sussex coast, none south of the Thames,- in the Hampshire uplands for instance. As before, there are no pieces significantly in the sixth century Anglian areas of settlement; and the pattern in relation to that of the former group is just that we might expect of an antecedent Saxon form, moving down into the Upper Thames at the same time as it develops the parallel G1 group.

Group G3 (fig.51(1-2), forms a small number of examples, with the characteristic G series section, but otherwise more or less corresponding in profile with group F4, having the upper part of the blade less of a tongue like extension and more tapering, with an apparently less pronounced concavity in the side as a result. It is larger for the most part than group F4, however, and more like that of G2, varying between about 30 and 36 cms. in length.

A small group, standing in the same numerical relation to the G series as the physically comparable F4 did to the F series, it seems probable that the introduction of the characteristic cross section, is merely

Fig.52. Geographical distribution of group G3: ● and group G4: o

an additional feature between the whole of these two series F and G; a supposition that is largely supported by comparisons of chronological and geographical range.

There are no well associated pieces, but each of the examples which make up this small but clearly defined group, are probably ascribable on general grounds to the later half of the sixth century; Burn Ground grave 6; Droxford (bm 1902 7-22 95 and 96); Harnham Hill (bm 53 12-14 3); and Sleaford (linc 816-23 09(1); much the same, that is, as the comparable group F4.

Similarly, the geographical range of this group (fig.52), so far as such small numbers might be reliable, is with the exception of a single outlier up at Sleaford, to the south and west of the lines of Saxon penetration of the later half of the sixth century.

Group G4 (fig.51(3-5), represents something of a divergence from the established pattern of the G series so far considered, in so far as the concave profile of the F series is abandoned, and the characteristically stepped section introduced into a more regularly straight-sided angular profile. The proportions are much those of group B2, or with a frequently high and obtuse blade-angle, those of D2; but as a whole this group is larger in size than either, varying between some 21 and 33 cms. in length.

Only two usefully associated examples occur. That

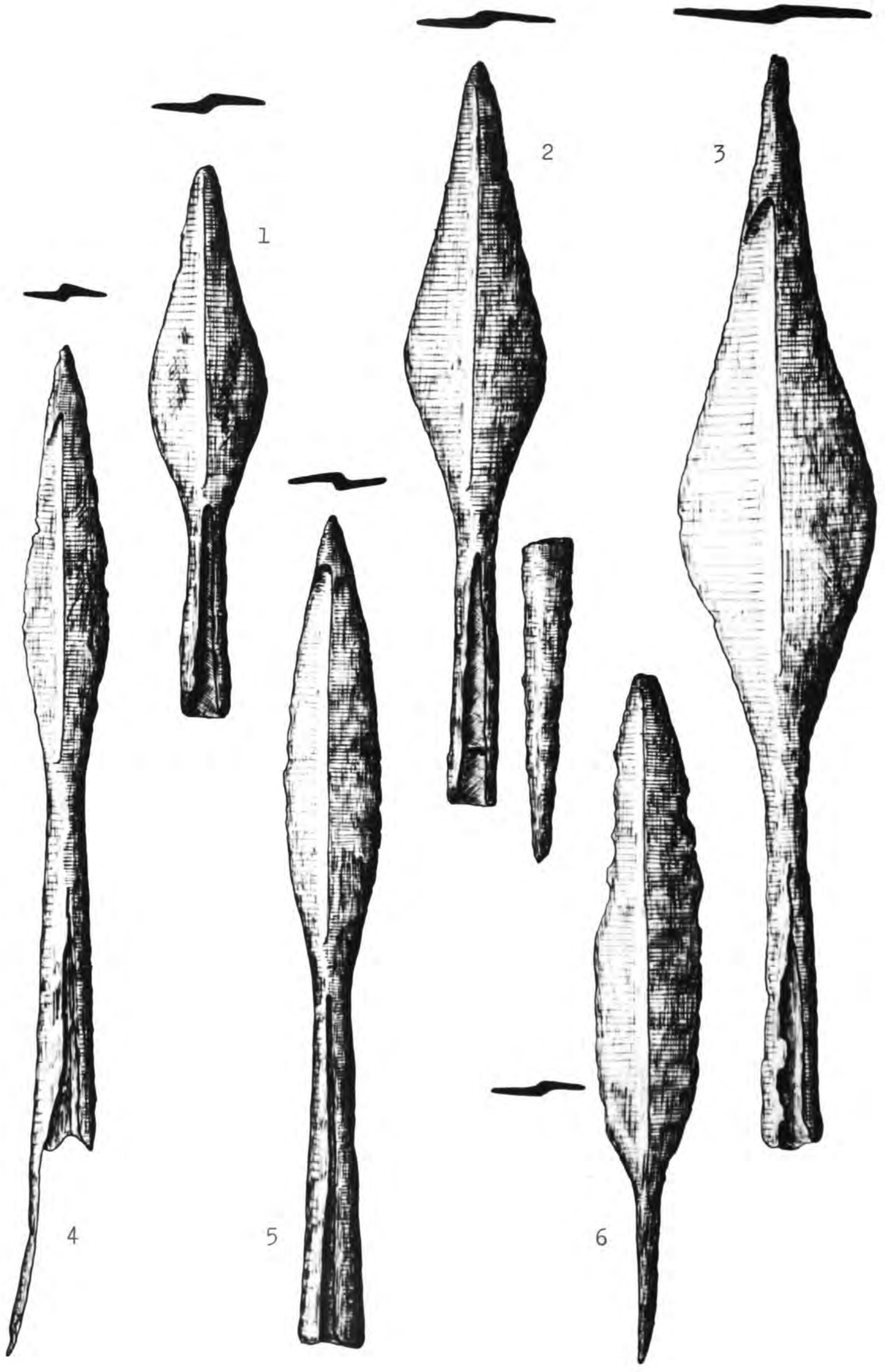
from grave 22 at Wallingford (fig.51(3) was found with an earlyish carinated and studded shield boss, while much later was that from Bury St. Edmunds (bury K43), found with a shield boss of tall straight cone type, and two small bronze buckles, oval-looped with folded rectangular plates, one of which has a row of three rivets at the back end, and the other six within silver beaded collars. All of the remainder of the group might be ascribed dates somewhere between these two, the majority clearly coming from some time in the sixth century.[1]

The chronological range of this group therefore, as with others of this series, seems to be centred firmly in the sixth century; probably beginning in its first half, but with only that from Bury St. Edmunds very obviously surviving its end. The geographical distribution of this group too (fig.52) is similar to the main body of this series, with a scatter in the east Midlands and the majority in the upper Thames, to the west in Gloucestershire and south in Hampshire. Two examples, rather curiously, remain from the cemetery at Chessel Down, but areas significantly lacking in general distribution are again: Kent and the Anglian areas to the east and north of England. So far as may be observed therefore, the

1. For instance, from: Alton (alt oc 952) (fig.51(5); Aston (bm 87 11-12 5 and (1); Bidford (strat(18); Bishopstone (ayl 13 80); Brixworth (north d 256); Chessel Down (bm 69 10-11 26 and 36); Dorchester gr. (2); Droxford (bm 1902 7-22 42 and 106); Fairford (ash 1961 76 and 77, and glos A3661)(fig.51(4); Fen Ditton (camb 58 152).

Fig.54. Types of Groups H1 (1-3) and H2 (4-6)

(1) Frilford (ash 1892 2635).
(2) Brighthampton gr.2.
(3) Alton (alt 1959 104).
(4) Brentford (lm 0.2060).
(5) Barnes (gunn 0.2061).
(6) Luton (lut(1).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pattern presented by this group supports the indication of a "Saxon" sixth century title for the whole series.

Group H1 (fig.54 (1-3) is made up of a small number of spear-heads which, together with the earlier broad sub-variety of group K3,[1] might be considered to have replaced group A2 in being the only insular pieces to perpetuate the ancient although currently decaying profile of the first Nydam type.[2] Originating with La Tène times, and invariably midribbed, dominant at Nydam I, this profile is rarely found after the period of the migrations, and is best typified by the small numbers and rapid decline of the insular group A2. It seems probable that just as group G2 replaces the physical structure of the continental midribbed F variety, so the traditional midribbing of group A2 is replaced by the sectional features of groups H1 and K2-3. Varying considerably in size between some 16 and 36 cms. in length, group H1 present more or less uniform profiles and proportions: relatively broad folliform blades, the widest part towards the bottom, and a slender concave curve to the tip above. The blade is usually longer by about a quarter than socket and junction pieces together. As a result of the breadth of the blade, the socket or junction piece frequently tends to appear more

1. See this section, p.224, fig.76.
2. See section II, p.77, fig.4.

slender than it really is (cf. fig.54(3)). The range in size seems large, but considerations of profile and proportion as well as of date, do not make further subdivision of this small class viable.

Examples from graves at Eynsham and Oxford were associated with early looking sharply carinated shield bosses, and a similar shield boss was found with that from Worthy Park grave 87, which was equipped with an inlaid binding-ring. Another from Riseley grave 86 was buried together with a bronze-bound bucket and a flat oval-looped bronze buckle. Two examples from the context of cemeteries at Luton (lut 5 45) and East Shefford (ash 1955 353) are probably to be placed relatively early, but the remainder are more conveniently grouped merely to some time in the sixth century.[1] The chronological range of this group therefore seems fairly early, probably beginning soon after the settlements and largely confined to the sixth century, with only that from Riseley possibly at all late, so that none clearly survive the end of the sixth century. Group H1 therefore is probably antecedent to group H2, with the apparent development within the H series being from broader more traditionally profiled examples, to the more slender varieties, which interestingly parallels that of related groups K2 and 3, where the broader examples similarly seem

1. For instance, from: Abingdon gs. 48 and 49; Alton (alt 1959 104) (fig.54(3); Brighthampton gr.2 (fig.54(2); Brixworth (north d.257); Frilford (ash 1892 2635)(fig.54(1); Long Wittenham gr.42; Petersfinger gr. 55; Worthy Park gr.83.

Fig.55. Geographical distribution of group H1: ● and group H2: ○

to fall somewhat earlier than the more slender.

The geographical distribution of this group (fig.55), is essentially "Saxon", with the major concentration in the Upper Thames and Hampshire, single pieces from the Saxon cemeteries at Luton and Risely, and a single outlier at Brixworth. But during the sixth century, especially the earlier part, the distribution pattern that we have hitherto described as "Saxon", forms an axis from the Wash to the Upper Thames, and here the concentrations are more comparable with those of the related group K3 (fig.78). As noticed earlier, this seems to have been a southern development, perhaps originating with the nascent kingdom of Wessex.

Group H2, (fig.54(5-6), forms a slightly smaller number of spear-heads, in which the characteristic section of the former group has been introduced into narrower more regularly foliiform blades, with the widest part of the blade at the middle. Varying in length from about 16 to 30 cms., the profile and proportions are much those of group 13, standing in the same relation to group K2 as H1 does the profile and proportions of the harrow group K3.[1] A small group of objects, similar in the blade, but

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1. See this section p. 222, fig.76.

tanged (fig.54(6)[1] are invariably described by museum authorities as "medieval knives", although no such forms are in fact known in the later medieval repertoire. Baldwin Brown considered the one piece known to him, from Cookham, to have been a unique double-edged knife,[2] but the form is clearly not designed to be used as a conventional knife where pressure is brought downwards onto a horizontal edge. This would require the firm back and triangular section characteristic of recognised Anglo-Saxon knives, rather than this helicoidal section which is best employed for use with major impact at the tip. All Anglo-Saxon knives are tanged, but a very definite group of tanged spears exists too, one of which at least, from group G2, has an identical section, and none of which have the appearance of jobbed-up repairs rather than deliberative design. That from Meols is curious in its location on the Wirral, but that from Luton is clearly associated in museum records with material from the early Anglo-Saxon cemetery there, and probably those from Queen's Road Reading and Lewes also come from grave contexts.

Only one example from the regular group is usefully associated: that from the first of the graves at Long

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1. The figured examples is from Luton (lut.unregs.(1). Others occur from Lewes (lewes 235); Reading (read 2 38), Cookham or Meols (Chester Museum unregs); while others have from time to time been claimed as African "imports" from Victorian times (information from Mr. W.B. Fagg).
2. Baldwin Brown G. (1915) III, p.231, pl.xxviii(3).

Wittenham, where it was found together with a pottery vessel which is probably not to be placed later than 500 A.D.[1] Perhaps the tanged piece from Luton might be ascribed to the relatively early date of that cemetery, but like that from Droxford (bm 1902 7-22 93), with the remains of seven broadish bronze bands encircling the socket, the majority of the remainder are probably to be grouped together some time in the sixth century.[2] The chronological range of this group therefore seems confined to the sixth century, although perhaps originating at its very beginning, in which respect this group might be compared with the associated group K2.

The geographical distribution of this group (fig.55), seems essentially southern, as before, with the largest number from the upper and middle Thames walley, and the only significant outliers up at Ruskington. No doubt this pattern is to be rationalised in much the same way as before. As with the whole of the related G and K series, significant distribution is absent from Kent and the specifically Anglian areas of the east and north.

Series I and J, taken together, although differing critically in the proportions of profile, represent the

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1. Information from Dr. J.N.L. Myres.
2. For instance, from: Abingdon gr.55; Aston (bm 87 11-12 5); Fairford (ash 1961 59); Ruskington (linc 35 56b and 15-40 38b).

varying form of insular development of the ubiquitous basic regular foliiform blade of pre-Migration times. Since Hallstatt times, simple leaf-shaped blades with the widest part of the blade towards the middle, on either lengthy or shortish sockets, and either with or, less frequently, without midribbing, formed a basic component of all spear series whether in north or south Europe, Germanic or Celtic context. Moderately broad midribbed blades on shortish sockets are characteristic of the Roman Iron Age, either side of the limes, and by the end of the period form a dominant group in the Nydam I deposits,[1] and a form clearly common to the whole of the Germanic congress during the folkwanderings. So generally universal indeed is this profile, both prior and subsequent to the migrations, that although varying in proportions with junction and socket, it might be regarded as the one Common Germanic form.

A wide variety of foliiform spear-heads are found throughout Europe during Merovingian times. In Alamannanic and more northerly Scandinavian regions as well as the Frankish kingdoms, traditional midribbed forms continue into the seventh century side by side with an increasing but still not dominant number of similar unmidribbed forms. As already noticed with regard to the angular series,[2]

1. Nydam I group 2; see section II, p. 78, fig.4.
2. See this section p. 117.

the general continental trend at this time is towards lighter varieties, still often strongly midribbed but more slender overall, and on fine, often delicate, junction pieces. No continental examples quite conform to the smaller pieces of insular series I and J; and those with similar proportions, more or less equal lengths of socket and blade, are considerably longer and narrower.[1] More frequently found are lengthier blades on shorter sockets, and small blades on long slender sockets, approximately corresponding respectively to insular groups I4-5 and J3-4.

In England, a few midribbed foliiform blades survive the Migrations, most of them conforming to the first Nydam I group, and forming our derivative group A2;[2] but although certain features seem to survive sporadically up to the time of Sutton Hoo, the composite technique of midribbing seems to have been a continental feature generally abandoned during the time of the earliest settlements, perhaps due to degenerate smithing in a frontier area, perhaps to that shortage of materials, which might be considered to have resulted in the general insular development of rather smaller varieties than contemporaneously on the continent. Most English examples have blades of a flat lentoid section,

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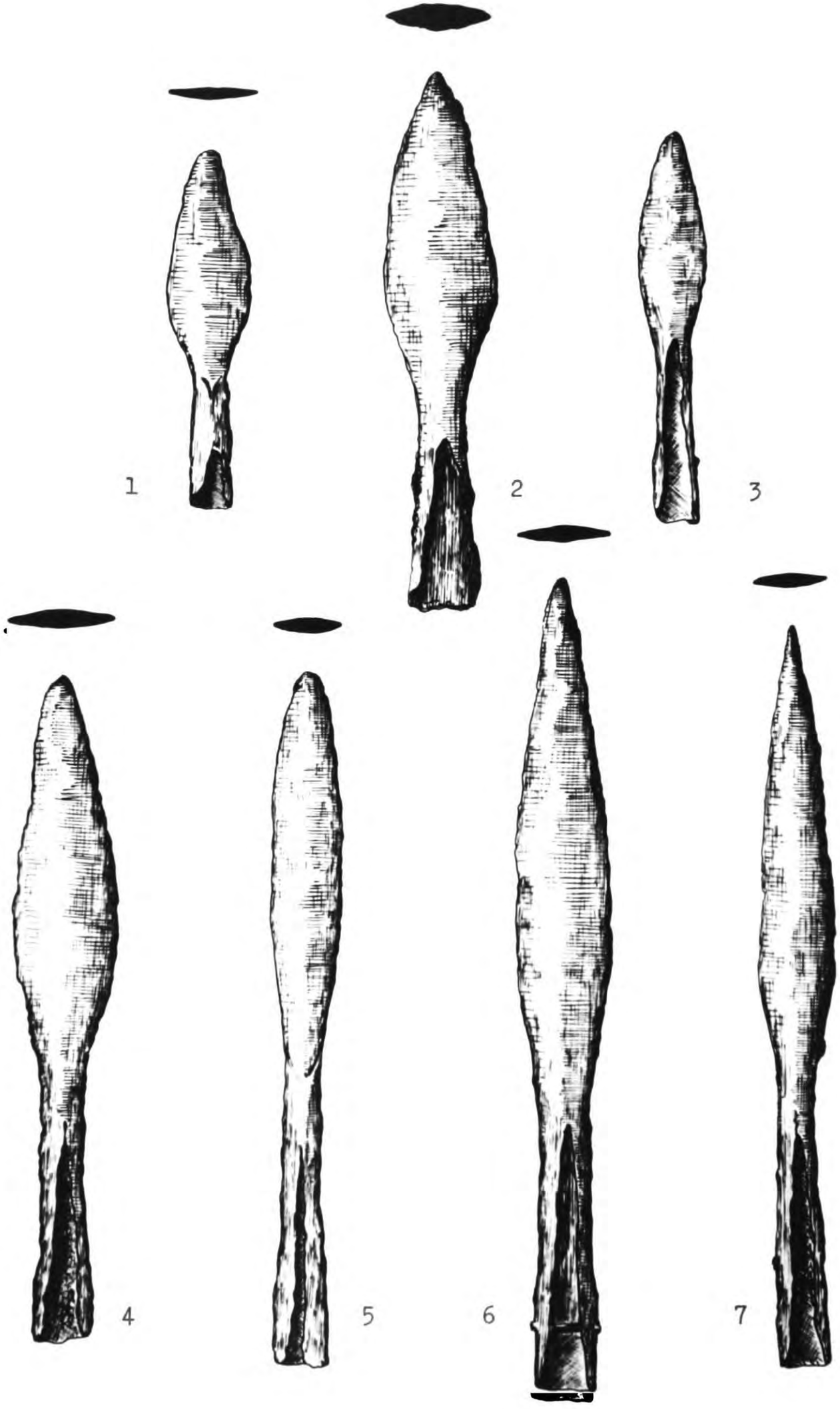
1. Eg. from Charnay (St. Germain-en-Laye Mus. regs. 34915), measuring something over 48 cms. in length.
2. See p.107, fig.9.

Fig.57. Types of Groups I1 (1-3) and I2 (4-7). (1) Barringtom (bm 76 2-12 63). (2) Chessel Down (bm 69 10-11 38) (3) Fairford (ash 1851 142). (4) Long Wittenham (bm(4). (5) Barham Down (liv 6319). (6) Winchester (winch(2). (7) Mitcham (king L35).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although in some of the narrower examples this assumes a high, almost lozengiform appearance.

Foliiform profiles, having no usefully fixed point on the edge of the blade, are considerably more difficult to define than angular examples; and more subtle gradations of curve, are less easily determined with corrosion. Some are more or less broad than others, but this seems less significant than the overall proportions between blade and socket. The I series is characterised by an increasingly lengthier blade than socket, and the J series, by the opposite, with increasing length of shank to blade.

Generally in the smaller sized groups of either series, the relative placing of the widest part of the regularly curved blade seems indifferently in the middle of the blade, but in the larger examples, where it might be more clearly observed, it is found to be regularly placed just below the middle, although with none of the traditional strickening above, characteristic of some groups.

Group I1 (fig.57(1-3) forms the simplest and smallest in size of all the I series, varying between some 10 and 20 cms. in length, with a blade of varying breadth in proportion. Most are relatively stoutly made with blade and socket of more or less equal length, divided only by a sturdy neck. The widest part of the blade comes in, or just below the middle of, a profile, regularly and firmly

curved from the junction to the tip.

An example from Stanton Harcourt was found with an iron oval-looped buckle, like that from Bidford grave 163. A similar small oval-looped buckle in bronze with a rectangular folded plate was found with that from Dover B grave 137, together with a sheet bronze bowl, and a Frankish rouletted eathenware bottle-vase. Another from Wretton was buried with a hemipherical shield boss, which should surely be either Roman, or much later, and Scandinavian. Probably those from: Barrington A (bm 76 2-12 63) (fig.57(1), Beddington (guild RB 1012(1) Driffield gr.19 or Frilford I (ash 1892 2534), are to be placed relatively early in the contexts of these cemeteries, but the majority of others of the group probably belong more generally to some time in the sixth century,[1] with only those from Garton Slack (hull(2) and Gilton graves 4 and 46, probably at all later.

The chronological range of this group therefore seems relatively wide, although centred on the sixth century. A traditional kind of profile, these small forms clearly begin with the earliest period of settlement, when the primitive feature of E2 type burred sockets of some, like those from Cliveden or Wiltshire (C21/2), may

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1. For instance, from: Baginton (cov(22); Bidford (strat(14); Chessel Down (bm 69 10-11 38) (fig.57(2); Fairford (ash 1851 142; 1961 75)(fig.57(3); Marston St. Lawrence gr.37; Mitcham (king 31).

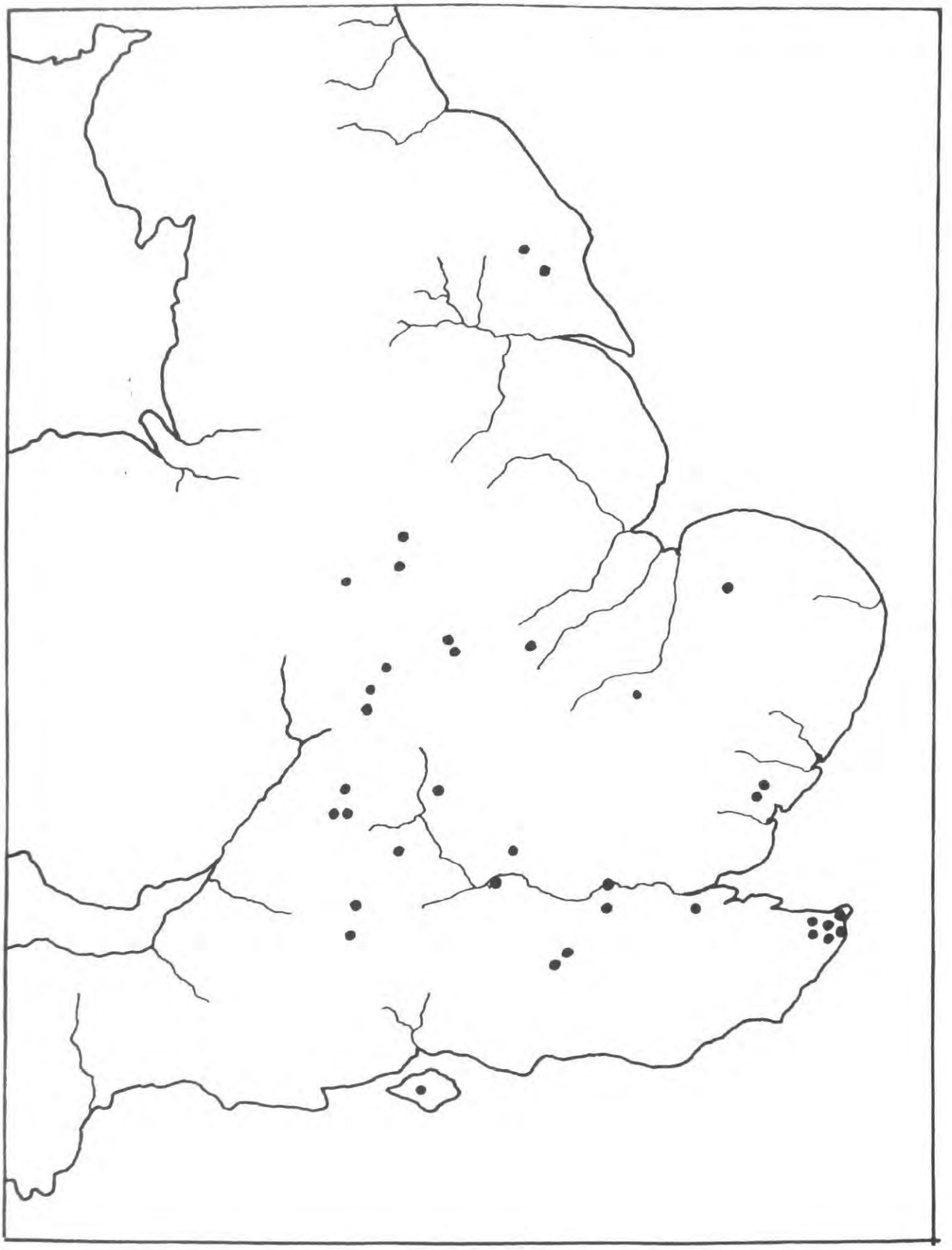

Fig.58. Geographical distribution of group II.

well have been made. Unlike the smallest angular groups however, a few examples clearly survive into the seventh century, and perhaps with Wretton even beyond. The more regular late extent of the subsequent larger group I2, however, indicates that the general trend towards larger blades with the increasing availability of materials, and probably changing trends in military tactics which come with the later sixth and seventh centuries,[1] are relected as much in this traditional profile type, as in the angular varieties.

The geographical distribution of this group is widely spread (fig.58) over the whole area of sixth century settlement, from the east Yorkshire Wolds to the Isle of Wight and east Kent; and as we might expect of a form that was traditionally common to the whole of the Germanic congress, it seems as characteristic of areas settled by Saxons, as by Anglian or other groups.

Group I2 (fig.57(4-7), is much the same in basic form as the previous group, although considerably more slender overall. At the same time, the proportion of blade to socket and junction pieces increases, with a proportionate lengthening of the whole, varying between 20 and 30 cms. for the most part; with one or two just a little larger, like that from Bifrons (maid 902) at 33.7 cms. A larger

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1. See sections IV and VI passim.

group numerically than any other of the I series, rather more dateable examples than usual occur.

Probably to the latest phase of military occupation are to be dated two examples from the upper levels at Richborough, one of which (no.278) has the cleft of the socket unusually displaced rather to one side; while from Tosson in the far north comes another found in a barrow together with a "coarse urn" which is now unfortunately missing. Another from Yarnton was found with a bronze-bound bucket. Most of the usefully associated examples, however, are to be placed rather later than any of these. An example from Chatham Lines grave 16 was found together with a Frankish rectangular-looped buckle of the type with a triangular plate, and three rivets at the apices, while that from Sarre grave 190 was found with a similar bronze buckle, the plate decorated with guilloche. That from Oliver's Battery Winchester, was found together with the well known hanging-bowl, and a silver-pommeled seax of a type which must probably be put into the late sixth or seventh century.[1] Those from Clipstone and Purton were found with similar seaxes of Böhner's broad variety, which might be given a broadly

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1. Evison V. (1962). Saxon objects from Northolt Manor, Med. Arch. V. 228.

seventh century dating in insular contexts.[1] Also with a seax and a tall conical shield boss of late type was that from Farningham grave (2). Others associated with sugar-loaf shield bosses came from Ilsley grave 3 and Lowbury Hill. Perhaps ascribable to the same sort of date, or even as late as about 800 A.D., is a rather atypical piece from West Ham Basingstoke, found with the well known bronze hanging-bowl with bird escutcheons, an iron vessel, and another spear-head of group E2.

The widest possible chronological range indicated for this group by associated pieces, is reflected in the general chronological contexts to which the remainder of this relatively large group might be ascribed. Those from Croydon (bm 95 3-13 21 and 23), Guildown grave 136, Luton graves 11 and 24, and Northfleet (grav(5), are probably to be given a relatively early date, with the greater bulk of the group probably to be placed merely some time centred in the sixth century.[2] Numbers more

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1. Böhner K. (1958) I, pp.130-45; and cf. Evison VI. (1962), pp.227-30.
2. For instance, from: Alveston gs. 6, 69, 74 and (strat(6 and 9); Baginton (cov(20); Beddington (guild S8977); Bifrons (maid 620 1954 25 and 902); Cassington gs. 1 and 6; Chessel Down (bm 69 10-11 37); Driffield gr.20; Dover B gr. 61; Haslingfield (bm(10); Heyford Purcell (ash 1893 197); Howletts (quex 145 1914); Linton Heath (camb 48 1644(3); Little Wilbraham (camb 48 1641(1); Londesborough; Long Wittenham gs. 83, 107, 114, 126, 176 and bm(4) (fig.57(4); Market Overton (oak(7, 10 and 18); Mitcham (king 35); Petersfinger gr.7; Ramsgate (11) Riseley 1 and 2); Sleaford (bm 83 4-1 566); Sittingbourne (bm 83 12-13 634); Wheatley gs. 33, 34 and (ash 1883 21b and 29 6); Worthy Park gr.3.

clearly ascribable on such grounds to the seventh century include those from: Barham Down (liv 6319); Cherry Hinton, Farthingdown (ashl885 148), Ipswich (ips(20), Prittlewell graves 26 and 28, Sarre graves 89 and 263, Sibertswold grave 59, and Shudy Camps grave 36.[1]

The chronological range of this basic spear-head form therefore seems to span the entire "pagan" period from the time of the earliest settlements to the end of the seventh and perhaps the earliest eighth century, with no apparent rise or fall in favour at any one time, although naturally very late examples are rare enough. With generally increasing length, this group could thus be modified in time to conform to the attestedly later Anglo-Saxon series M. Continental counterparts to this group, although longer and somewhat more slender for the most part, extend over the same wide period, from earliest migration times as at Galgenberg or Vermand in the later fourth century,[2] to Beckum or Bourogne in the seventh century,[3] or further south at Hundersingen probably into the earliest eighth century.[4]

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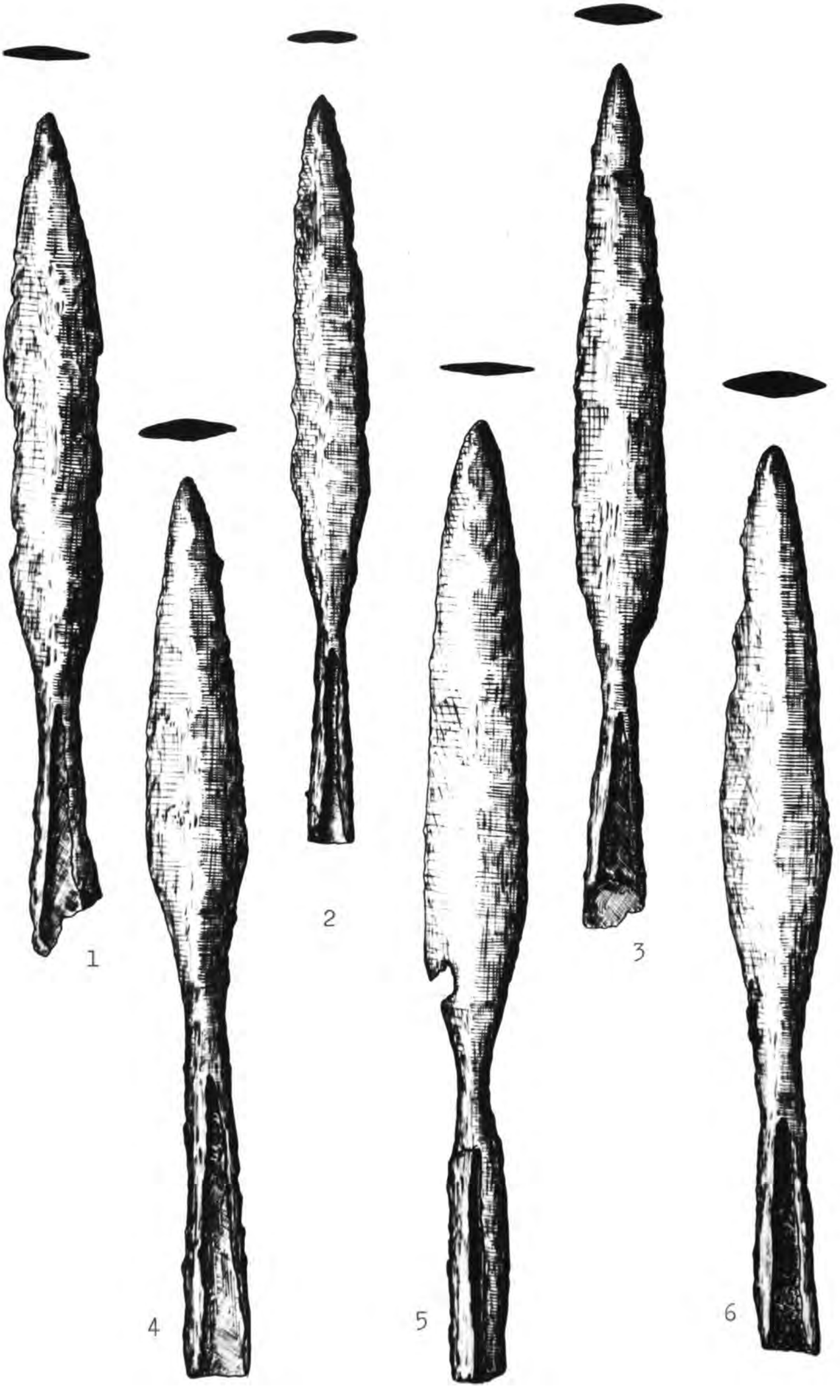
1. In addition may possibly be accounted five pieces from Faussett's late east Kent collection: (liv(3,11,13,32 and 38).
2. Boulanger C. (1902-5) p.47; Roeder F. (1933), grave 15, taf. xiii(4).
3. Werner J. (1935) p.99, taf.27; Scheurer F. and Lablotier A. (1914), Fouilles du Cimitière Barbare de Bourogne; grave 27, p.64, pl.xiv(d).
4. From a warrior grave together with a sugar-loaf shield boss decorated sword hilt, spurs and buckles: (Stuttgart Museum regs.11670).

Fig.59. Geographical distribution of group I2.

Fig.60. Types of Groups I3 (1-3) and I4 (4-6). (1) Beddington (guild S8981) (2) Luton (lut 2.106.50). (3) Harnham Hill gr.1. (4) Kingston nr. Lewes (lewes 245.1). (5) Loddington (north 294 1955-6). (6) Longbridge (bm 80 5-21 3).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The geographical distribution of this group (fig.59) is even more widespread than the previous, extending from Tosson and Hob Hill in the far north, to East Kent, Chessel Down, and the Severn Valley in the far west. The apparently dense concentration in East Kent is visually deceptive, and in view of the number of cemeteries excavated and the amount of material preserved, distribution seems to have been more or less equally dispersed over the whole area of Anglo-Saxon settlement.

Group I3 (fig.60(1-3), is formed of a relatively small number of spears, rather longer than those of the former group, varying between 22 and 32 cms., with just one or two longer pieces. In essence again, much the same as the profile of I2, but significantly more slender still, the blade is distinctly longer in proportion to the socket, and the widest part of the blade well down near the junction, with much less of a firm regular curve therefore to the tip. Blades are lentoid in section, uniform with all of the foliiform series.

Associated examples indicated a regularly latish date for the most part. The example from Harnham Hill grave 1 (fig.60(3) was associated with a sharply carinated shield boss, but those from Brettenham and Prittlewell grave 18 were found with shield bosses of low-cone type. Similar shield bosses were buried with that from Prittlewell grave

6 together with a horned purse-mount, and that from Dover B grave 131 together with a small iron oval-looped buckle. An example from Loddington (north 293 1955-6) must have been deposited rather later with a tall curved shield boss, and another spear of the late group 14.

Probably those from Luton (lut BL 2 10650)(fig.60(2) and Northfleet (grav(2) can be ascribed to a relatively early context, but the great majority are more likely to belong merely to some time in the sixth century.[1] Perhaps more clearly from the seventh century comes an example from Ipswich (ips(15) and another three from Faussett's east Kent collection: (liv(8,30,and 45). Possibly even later is that dredged from the Thames at Staines, together with a late axe.

The chronological range of this small group therefore, is much the same as that of the former group, of which it almost forms a physical sub-variant, obviously beginning early but surviving at least sporadically into the seventh century. Comparable forms are found in continental graves over the same wide area as the former group, and over the same wide period, right up to the earlier eighth century at Hamburg-Schnelsen.[2]

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1. For instance, from: Alveston (strat(9); Barrington A gr.12; Beddington (guild S8981) (fig.60(1); Bifrons gr.66; Bidford (strat(7); Chessel Down (newp(2); Marston St. Lawrence gr. 37; Morecombelake (dorch 1927 6.1(2 and 8); Ramsgate gr (0).
2. Schindler R. (1952) Ein Sächsisches Reitergrab in Hamburg-Schnelsen; Hammaburg III, p.115, taf.10(6).

Fig.61. Geographical distribution of group I3.

The geographical range of this group too, (fig.61), although considerably less dense on the ground, is much the same as that of the previous group, spread widely over the same area, with no particularly significant regional concentrations of any kind.

Group I4 (fig.60(4-6), is another numerically smallish group, basically similar in profile to each of the foregoing I series, sharing separate characteristics of each. Relatively large for the most part, varying between 25 and 35 cms. in length, with one or two rather larger, like those from Ramsgate (24) or Wooton measuring something over 40cms.; they are at the same time as slender overall as group I3. The proportions between blade and socket, however, are much more those of groups I1 and 2, and seem in this respect to conform more consistently with the simpler I series counterparts found on the continent.

Usefully associated examples include those from Alveston grave 39 and Nassington grave 27b, both found with early looking carinated shield bosses. Probably much later are those from Loddington (north 294 1955-6) (fig.60(5) found with a tall curved shield boss, and a spear of group I3, and from Melbourne grave 25 associated with a small bronze buckle of the type with an oval loop and folded rectangular plate with a row of three rivets at the back end. The majority of the remainder

Fig.62. Geographical distribution of group I4.

of the group are probably to be ascribed roughly to the sixth century, with none except perhaps that from Trumpington,[1] obviously early; with others from Farthingdown (ash 1885 147), Prittlewell (south 438 2) and Ipswich (ips(22 and 24) more clearly from the seventh century. Two from the late cemetery at Shudy Camps graves 30 and 76 are probably to be placed at the very end of the period during which funeral goods were still buried.

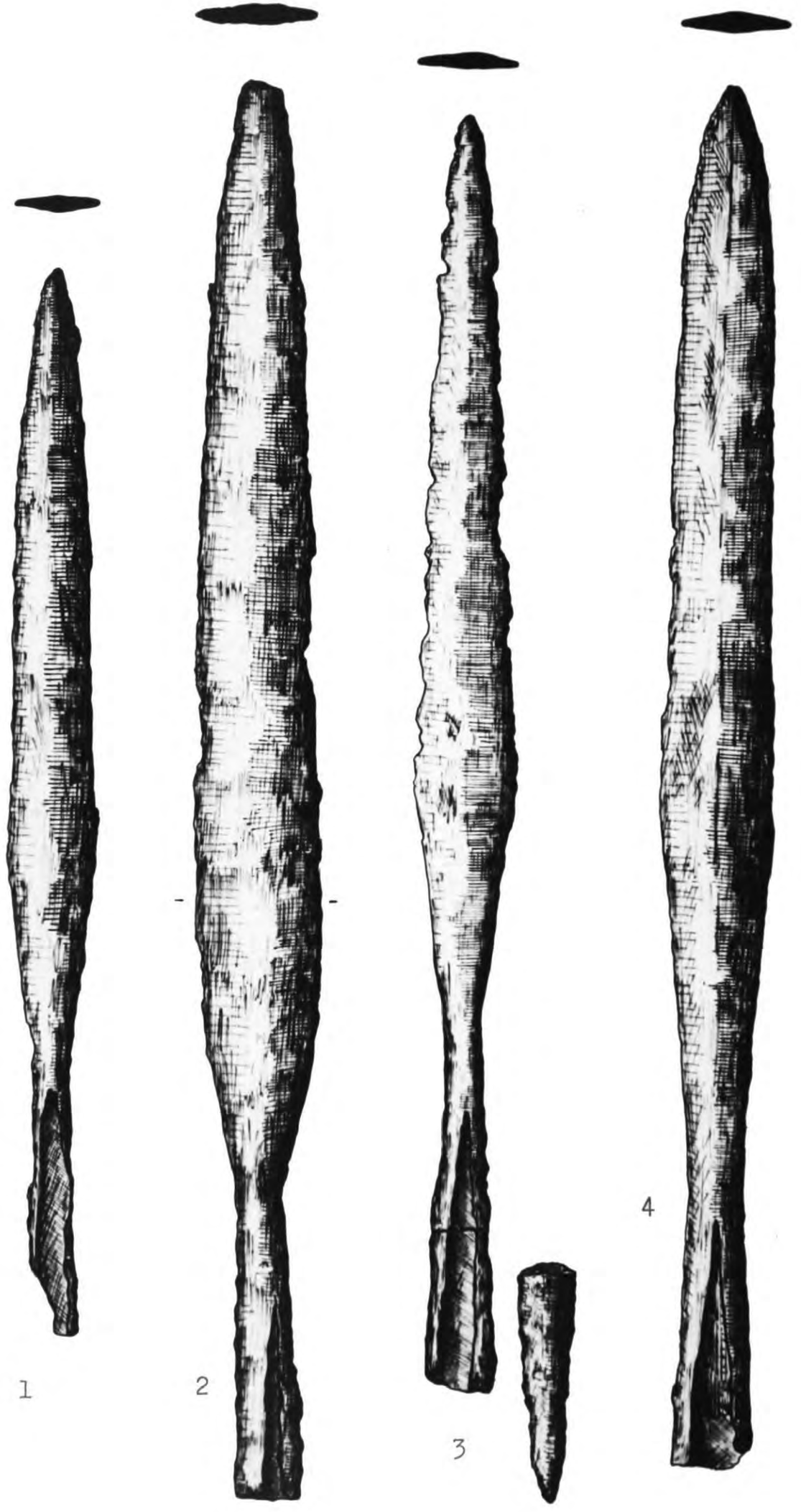
On the continent this sort of spear-head is found, as we have already noticed, in a wide range of dateable contexts, from the times of the earlier migrations to the end of the seventh or the beginning of the eighth century. In England, this group does not seem to have had such clearly early origins, but rather representing an increase in size of groups I1 and 2, seems to arise some time during the sixth century, becoming increasingly popular during the seventh, and surviving at least until the end of that century.

The geographical distribution of this group (fig.62) presents a widespread pattern not differing significantly from any other of the I series, but with a rather denser scatter in the Midlands than elsewhere, for no manifest

1. For instance, from: Bidford (strat (7 and 9); Brixworth (north d.268); Fairford (june 13th); Frilford (ash 1892 2638); Hinkley (ash 421); Kempston (bm 91 6-24 89); Linton Heath (camb 48 1644(4); Longbridge (bm 80 5-21 3) (fig.60(6); Morecombelake (dorch(1); Ramsgate (15,16,21 and 24); Rothley (leic 26 1901); Sleaford gr.119 and (linc(3); Wheatley (ash(1); Woodston (pet.L552).

Fig.63. Types of Group I5.

(1) Long Wittenham gr.38.
(2) Melbourne gr.12.
(3) Petersfinger gr.20.
(4) Winterbourne Gunner gr.1.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reason, save perhaps merely that of regional taste.

Group I5 (fig.63), like the subsequent group with which it formally overlaps to some extent, is made up of a small number of spears clearly distinct in profile from those of the I series already discussed. A typological development out of the I3 group, and as slender overall, it is not much longer, with the blade part usually accounting for a large proportion of the whole. The blade is sensibly wide at the base however, with a curved and flaring junction still, so that the profile remains distinctly foliiform despite its length. Lengths range between some 35 and 50 cms.

Two usefully associated examples occur in particular. An example from Melbourne grave 12 (fig.63(2) was found with a tall cone shield boss and a small oval-looped bronze buckle of the type with a rectangular plate fixed by a vertical row of three rivets at the back end. That from Petersfinger grave 20 (fig.63(3) was buried with a sword equipped with a cocked-hat type of bronze pommel, and an oval-looped bronze buckle with a shield-shaped plate on the tongue, and decorated with Style I zoomorphic decoration which must belong to the middle sixth century. In addition an example from Snell's Corner grave 14 was

found with a low-cone type of shield boss, and rather later, that from Thetford with one of sugar-loaf type. An example from Sanction had the probable association of wrist clasps and an early type of Åberg's cruciform brooch-class IV.[1] Another from Winterbourne Gunner grave 1 was found with a carinated shield boss and a horned purse-mount.

That from Northfleet grave 1 might possibly be ascribed a relatively early context, but the great majority of the group are probably to be bulked some time in the sixth century,[2] with only that from Farthingdown (ash 1885 145) probably rather later.

On the continent of Europe, sporadic examples occur which conform in profile with the insular group, from the later fifth or earlier sixth century, like that from grave 16 at Haillot;[3] or to the later sixth or earlier seventh century at Charnay,[4] or Sindelfingen further south.[5] Examples are relatively rare, however, unrecognised as a

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1. Åberg N. (1926) The Anglo-Saxons in England, pp.42-9.
2. For instance from: Alfriston (lewes(1); Beddington (guild RB 1012(3); Dover B gr.57; Droxford (bm 1902 7-22 104); Haslingfield (bm(12); Long Wittenham gr.38 (fig.63(1); Milton Field Abingdon (bm 62 7-19 4); Nothley (leic 116 1962 208a); Sleaford (linc 816 23 09(5).
3. Breuer J. and Roosens H. (1956) p.228, fig.18(9).
4. An example with a closed socket and round bronze wrythen rivet collars; (St. Germain-en-Laye Museum. regs.34687).
5. A new find with a closed octagonally facetted socket, faint ring markings at the junction, and a decorative scribe line vertically up the lower half of the blade; (Stuttgart Museum regs.51/132).

Fig.64. Geographical distribution of group I5.

group by for instance Böhner,[1] and apparently not found in Scandinavia at all.[2] With neither significantly early or late examples, this chronological range more or less conforms with that of their insular counterparts. In England, the group will most probably have developed early in the sixth century, and survived into the seventh, but with most of the examples bulking in the sixth century. Typologically, it would not be surprising to see a clear line of development between this group and the attestedly later M series, but there seems to be no archaeological evidence for a distinctly late continuity of this sort of spear-head.

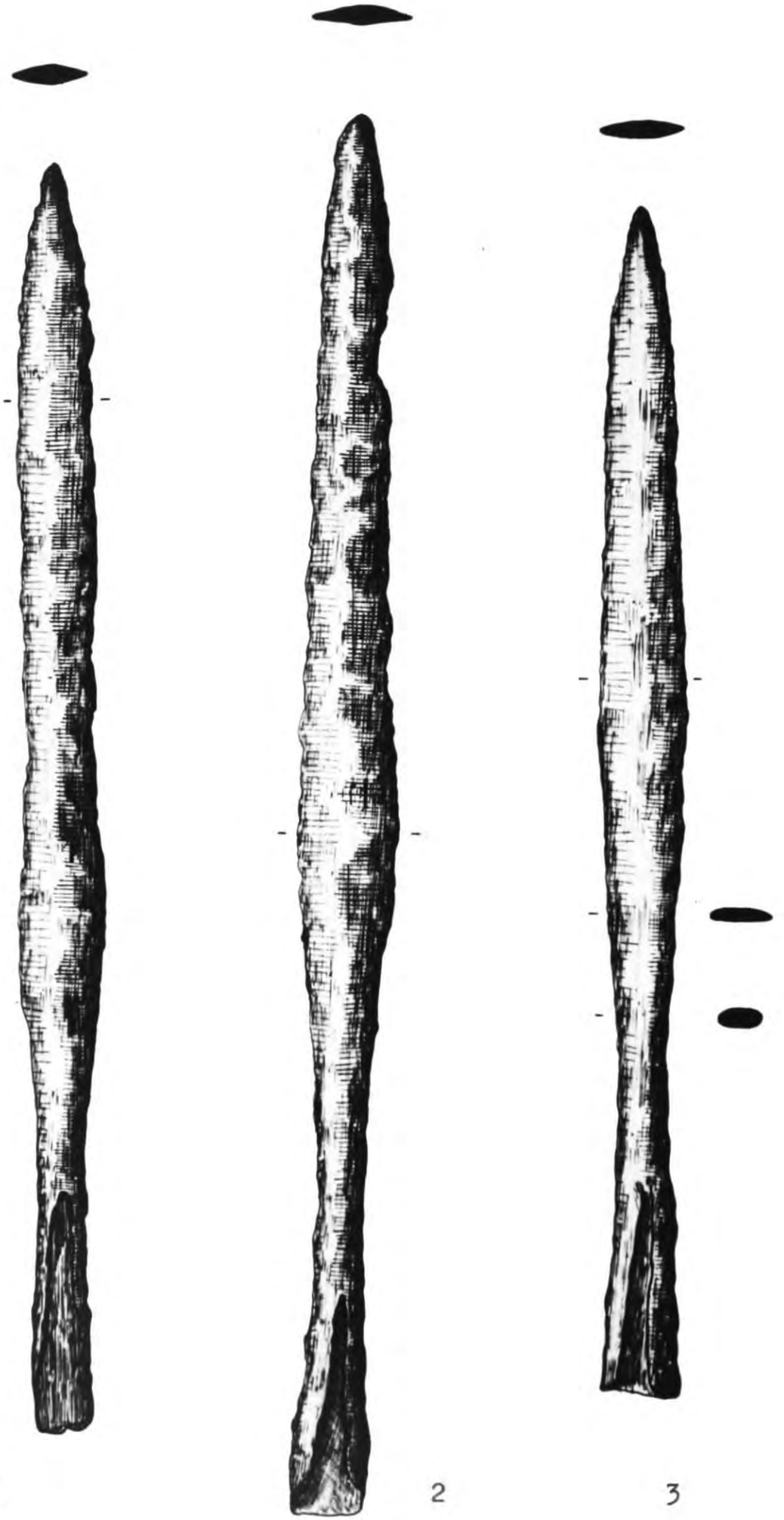
The geographical distribution of group I5 (fig.64), is not distinctive; sparsely scattered over a wide area from Yorkshire to Sussex, but with no example shown from the East Anglia coast, which like Kent, as we have seen, tended to favour the larger varieties of spears.

Group I6 (fig.65), composes an equally small number of spear-heads, presenting the characteristic features of the former group, although in a rather more extreme form. Varying for the most part, like the former group, between some 35 and 50 cms. in length, the whole is rather more

1. Böhner K. (1958).
2. With the curious exception apparently of a small number of sixth and seventh century pieces from Finland: Salmo H. (1938) pp.192-4, taf.xxvii(8).

Fig.60. Types of Group I6.

(1) Darlington (darl(3).
(2) Petersfinger gr.33.
(3) Harnham Hill gr.17.



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slender, with the classic leaf-shape abandoned for a less decisively curved, but nonetheless distinguishable profile, which seems to have more in common with functionally similar forms, like the lengthy and slender groups of B5 and E3. A single smoothly curved outline runs from tip to socket, with a less clearly defined junction than hitherto, but a moderately long junction piece, which in profile and section more subtly grades from blade to socket; most frequently presenting a flattened oval section between that of the lentoid blade and circular split socket. With this characteristic profile, the effect of proportion is again very much that of the related angular varieties B5 and E3, with the socket part taking up something less than a quarter of the whole length. Two rather short pieces from Dover B graves 114 and 135, presenting much the same sort of flattened spike, and already mentioned with reference to group A1, perhaps represent a formal overlap between the two groups, but while group A1 is clearly derivative, group I6 must be seen most probably as a later insular development.

Three usefully associated examples occur. That from grave 33 at Petersfinger (fig.65(2) was found with a Frankish-style tinned bronze buckle with an oval loop and three-studded heart-shaped plate. That from Dover B grave 135 was buried with a small iron buckle of later type with oval loop and triangular plate with

bronze studs at the apices. Another from East Ewell was found together with a shield boss of sugar-loaf variety. Much the same pattern is reflected in the general chronological context of the remainder of the group, with that from Harnham Hill grave 17 (fig.65(3) possibly from the earlier half of the sixth century, but the remainder[1] from rather later in the same century or the earliest part of the next, with that from Gilton (liv 6875(1) more certainly from the seventh.[2]

On the continent this sort of spear-head occurs even more sporadically than the former group, and only appears as a recognisable group during the seventh century, when it appears to have been more or less confined to the Alamannic regions of the south, as at Mindelheim or Sindelfingen,[3] where examples are found usually rather shorter, with closed and occasionally facetted sockets, and frequently decoratively engraved blades. In England, while probably beginning by the middle of the sixth century, group I6 seems to find favour only later in the

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1. For instance, from: Alveston gr.92; Bidford (strat(21); Brixworth (north d.246, 278 and 280); Chessel Down (bm 69 10-11 22); Darlington (darl(3) (fig.65(1); Dover B gr.114 North Luffenham (leic 1 1946 and oak(4); Sleaford (bm 83 4-1 587); Snell's Corner gr.14; Wheatley (ash(2).
2. And cf. two pieces from the Faussett east Kent collection: (liv(50 and 61).
3. Werner J. (1955) graves D1 and 2, and 94b; pp.19-20, abb. 3 and 37; Veek W. (1931) pp.206-9, taf.71B(8 and 10); and cf. examples from Horkheim and Tannheim (Stuttgart Mus. respectively: regs. A38/53, and unregistered).

Fig.66. Geographical distribution of group I6.

century, and probably survives, like its continental counterpart, until the end of the seventh. This sort of profile, often with decorative vertical socket-fullering, seems to survive into the later period, as in that from grave 8 at Vendel,[1] and it may well be that this represents a clear continuity, without the hiatus that the lack of archaeological evidence suggests; the decoration perhaps finding its origins in that of the Alamannic examples of the seventh century already noticed. Groups B5 and E3, which must be associated functionally with this group, seem to flourish over roughly the same sort of period as I6, although for them no clear line of typological continuity can be traced into varities in use in later Anglo-Saxon England; it seems likely that the more slender examples of the attestedly later group M2,[2] find their typological origins here; but at no stage does this appear to have proved an overwhelmingly popular weapon.

The geographical distribution of this group (fig.66), is much the same as that of the previous group, with a light scatter over the whole of the settled area. Only one slender and atypical example comes from East Anglia, however, at Mildenhall, although the pattern of groups B5 and E3 certainly included examples from this region.

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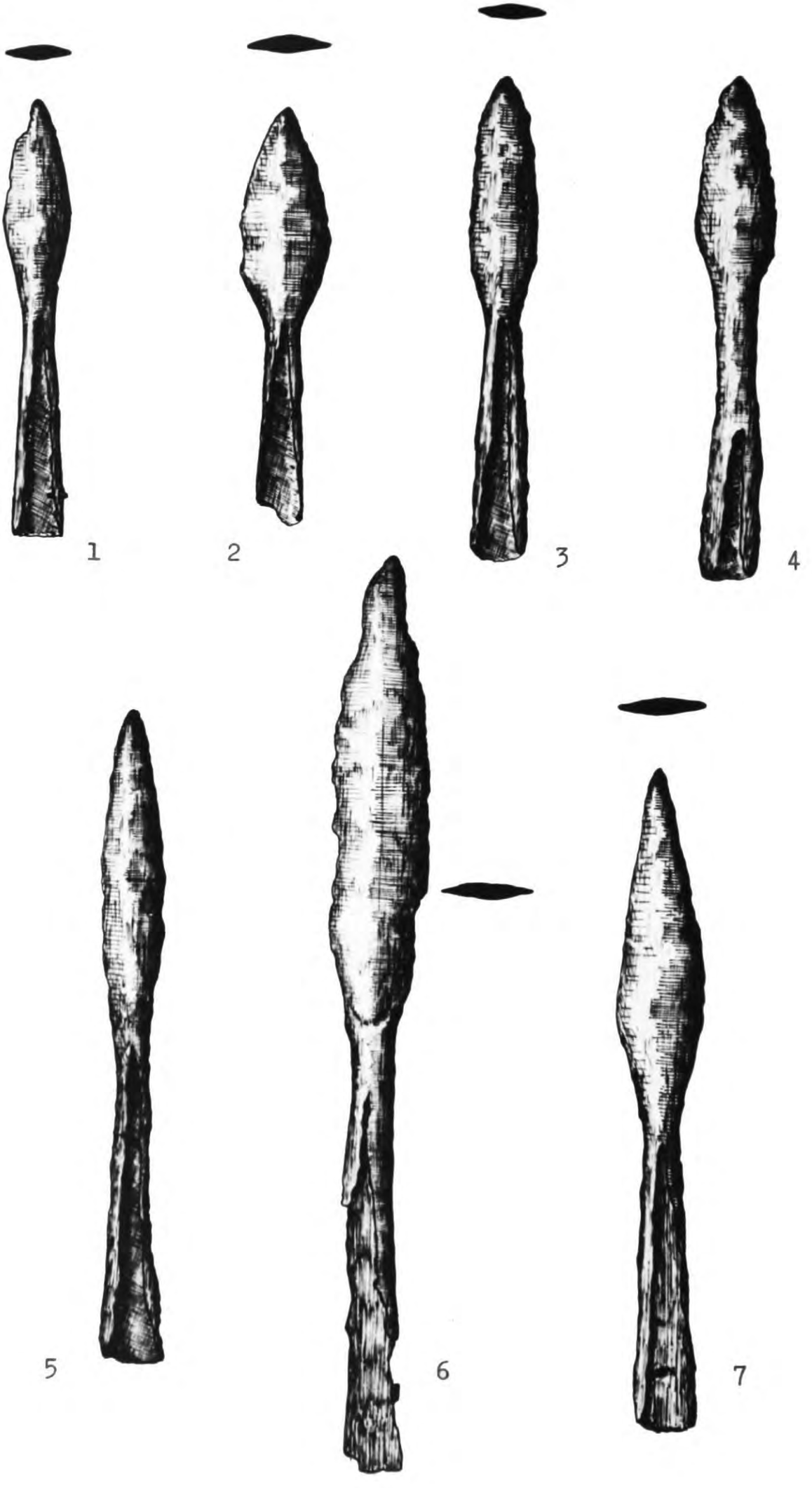
1. Stolpe H. and Arne T.J. (1912) p.32, pl.xxii(3); and cf. Petersen J. (1919) type E, p.26, fig.13.
2. See this section, pp. 260-3, fig.88.

Fig.67. Types of Groups J1 (1-4) and J2 (5-7).
(1) Basset Down. (2) Belford. (3) Linton Heath gr.89. (4) Little Wilbraham (camb 48 1640.1). (5) Bidford (strat(1). (6) Cookham, Wycombe Railway. (7) Woodstone (pet L557).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Group J1 (fig.67(1-4), stands in the same relation to group I1 as C1 did to B1, being basically the same in essential profile, but with the proportions of blade to socket differing sufficiently to allow for a formal distinction in principle as the typological basis of a fresh series:. The simplest and smallest of the J series, the characteristic profile here is a small, relatively stout foliiform blade on a split socket which, together with a short solid junction piece, accounts for something over half the whole. Lengths of spears in this group vary between about 14 and 19 cms. Some variety exists within the group, as with I1, some blades being relatively broader than others. Most socket clefts persist right up to a nominal junction, but the occasional one is found much shorter, with a lengthier junction piece (fig.67(4), or others where the socket cleft is merely burred over outwards at the upper end, as in group E1, like those from Luton grave 6 or Little Wilbraham (camb 48 1640(3).

Just one example from this group is currently to be associated: that from a grave at Colchester where it was buried with an early looking carinated shield boss (colch pc mdx-xiii(1). But probably to be ascribed to a relatively early context is that from Luton grave 6, and another with the early feature of a closed socket, from East Shefford (bm 93 7-16 133). Probably all of the remainder

Fig.68. Geographical distribution of group J1.

are to be lumped some time into the sixth century,[1] with none obviously early and none clearly ascribable to the seventh century; and it seems that the chronological range of this group is relatively early, beginning with the first migrations, but generally falling off by the end of the sixth century, repeating thus the pattern presented by the related group I1.

As with group I1, no comparable group of small foliiform blades is to be found on the continent; the nearest being that from a grave at Cambronne (Oise)[2] which although presenting much the same proportions, is rather longer and more slender than characteristic pieces from the insular group.

The geographical distribution of this group (fig.68), presents much the same widespread pattern as that of group I1, extending from the east Yorkshire Wolds to the Thames, but with only one piece noticed either from east Kent, or the Avon valley, and none in areas of Saxon settlement south of the Thames valley. Perhaps, together with the subsequent group, the smaller forms of the J series, are more characteristic of the northern, although not exclusively "Anglian" areas of settlement.

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1. For instance, from: Basset Down (fig.67(1); Alveston/Bidford (strat tr.1); Burn Ground gr.9; Eastry (maid(1); Fairford gr.(14thFeb) and (ash 1961 28); Garton Slack (hull(3 and 5) Haslingfield (bm(7); Kilham (york 397 47); Linton Heath gr. 89 (fig.67(3); Little Wilbraham (camb 48 1636a and 48 1640 (1 and 3) fig.67(4); Long Wittenham gs.24 and 69; Market Overton (oak(19); Sleaford (bm 4-1 592).
2. St. Germain-en-Laye Museum; regs.15504.

Group J2 (fig.67(5-7) is somewhat greater in numbers than the former group, from which it represents a typological development. A stage larger, varying for the most part between an original 20 and 28 cms. in length, and rather more slender overall, the proportions between blade and socket are rather less distinctive than those of the former group. This group has much in common therefore formally, with group I2. The socket is usually narrowly split as far as the junction.

Associated examples cover the entire pagan Anglo-Saxon period. A closed-socketed example from grave 20 at Luton was found with a cremation urn; another from grave 32 in the same cemetery was buried with a small bronze-bound bucket. That from Broadstairs (broad(1) was found with a Frankish square-looped bronze buckle, that from Dover B grave 27 with a small oval iron buckle-loop and a low-cone shield boss, and that from grave 156 with a tiny bronze buckle and a rouletted Frankish earthenware bottle-vase. Another example from Kingston Down grave 16 was buried with an iron plate inlaid with silver cells imitating cloisonné work,[1] and a low-cone shield boss. A similar shield boss was associated with that from Gilton grave 5. Later probably still was that from a barrow at Wigberlow in Derbyshire, a fragmentary but probably origi-

1.Evison VI. (1955) p.44.

nally smallish example, associated with a gold mounted boar tusk, a circular pendant in gold with filigree star and a garnet stud centre, a pair of silver cross-headed pins set en cabochon with garnets, a silver penannular brooch, and silver wire slip-rings. From what is apparently a double grave, this must almost certainly be dated to the very latest date at which grave goods were buried with the dead.

In spite of the wide chronological range indicated by associated examples, the vast bulk of this group might be ascribed probably merely to some time in the sixth century.[1] One more from Luton (lut(11) together with others from Driffield grave 20 and (york 411 47) may possibly be rather earlier, while a single piece from Faussett's east Kent collection (liv(21) might possibly be rather later.

There are sufficient well dated pieces, however, for the general chronological range of this group to be quite clear. It begins probably early by the beginning of the sixth century, but finds favour only in the middle and later part of that century and the earlier part of the

1. For instance from: Barrington A gs. 22b, 26 and (bm 76 2-12 61); Bekesbourne (cant rm 7585); Bidford (strat(1 and 5) (fig.67(5); Brixworth (north d.258); Colchester (colch pc. mdx-xiii(3); Dover B gr.41; Droxford (bm 1902 7-22 116); Finglesham gr. H3; Kilham (york 398 47); Little Wilbraham (camb 48 1636c, 1640(1), and 1641(1); Sleaford (bm 83 4-1 565); Stowting gr.3; West Stow Heath (bury K71); Wheatley (ash 1883 25); Woodston (pet L557)(fig.67(7).

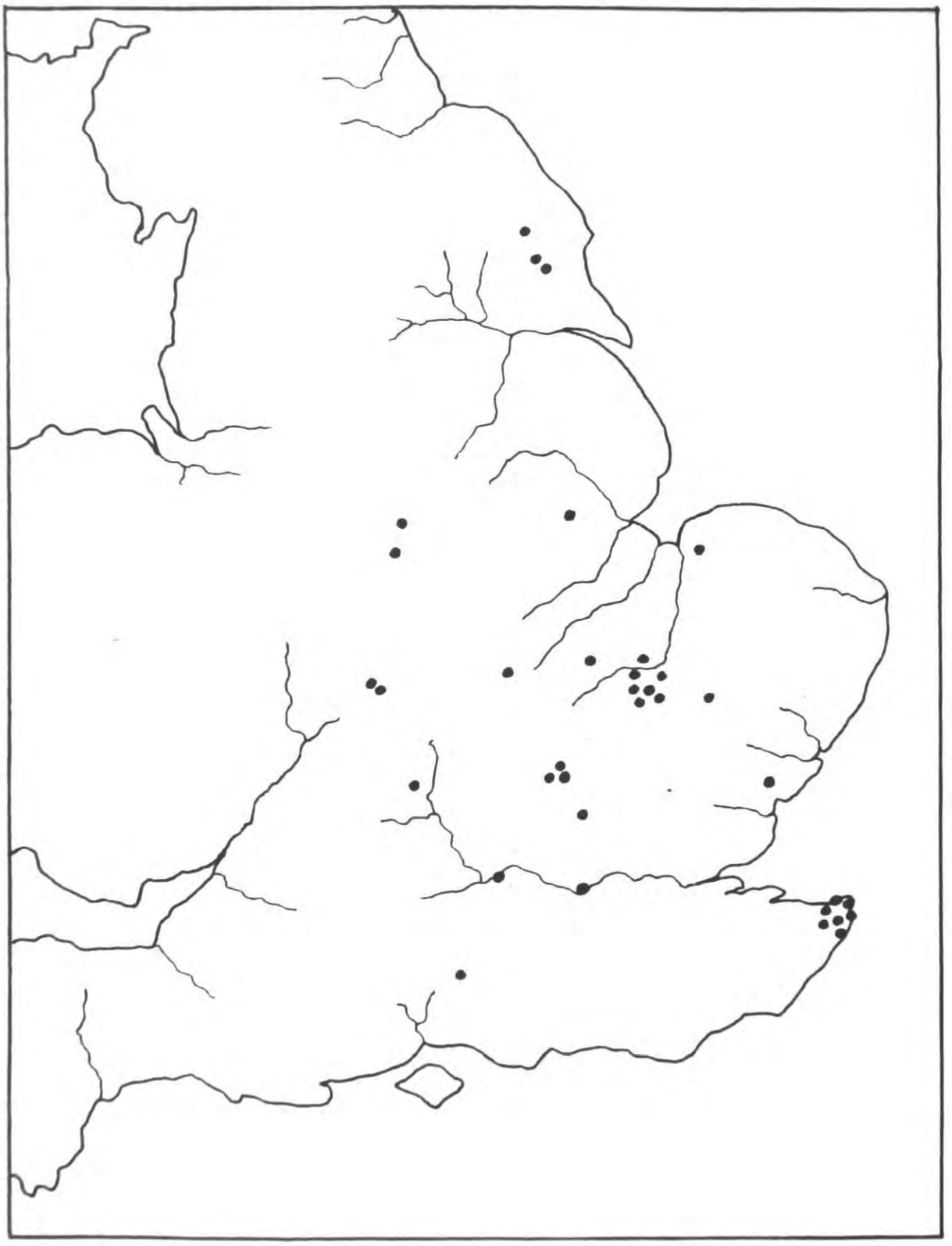

Fig.69. Geographical distribution of group J2.

next, surviving at least sporadically well into its end and perhaps a little beyond. No comparable continental or Scandinavian group is recognisable, but the formally related I2 group presents a clear line of continuity from migration times to the very end of the "pagan" period in both insular, and continental contexts.[1] This group perhaps then represents a less popular variant of the other, which was largely confined to the sixth century.

The geographical distribution of this group (fig.69), presents much the same features as that of the former, except for a rather larger number from east Kent, in which respect it stands in the same relation to group J1, as I2 did to I1. Group J2 is scattered thinly over the whole of the area of Anglo-Saxon settlement north of the Thames, with just one small concentration in Cambridgeshire. A single outlier is found in the south at Droxford, but rather less than before emanate from the cemeteries of the Thames valley. Perhaps this urges further the possibility of a "northern" if not "Anglian" taste, in contradistinction to subsequent groups.

Group J3 (fig.70), is composed of a number of spears which vary considerably in length. Although all slender and delicately made with long solid junction pieces, they

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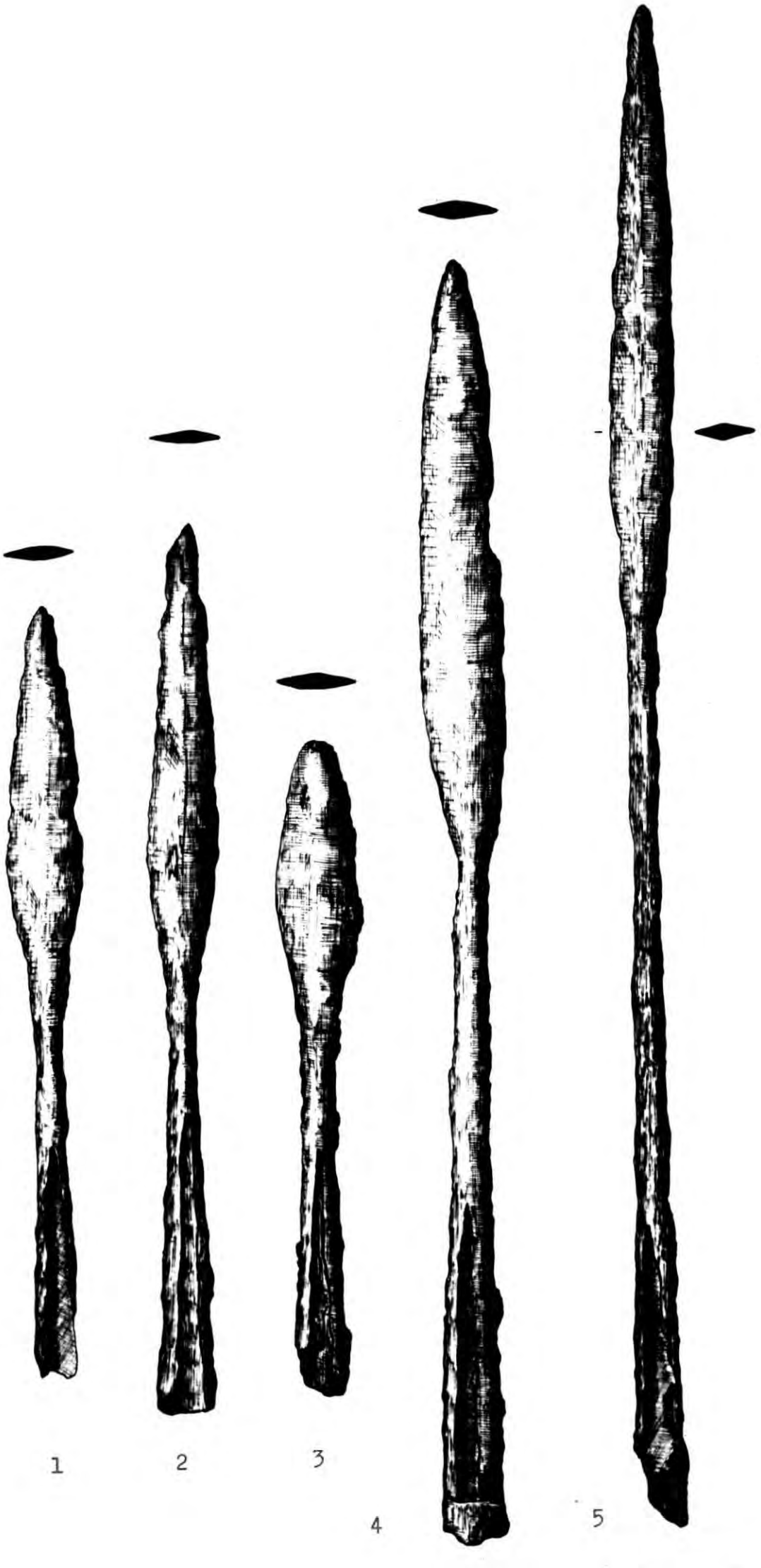
1. See this section, p. 194.

Fig.70. Types of Group J3.

(1) Droxford (bm 1902 7-2 105). (2) Dover B gr.63. (3) Chessel Down (bm 69 10-11 39). (4) Prittlewell gr.2. (5) Bifrons (maid 811).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have distinctive proportions, with narrow ovoid blades deceptively appearing to take less than the two fifths of the whole that they regularly do. The junction between blade and socket piece is smoothly made, with no sharp flaring into the foliiform blade, but with a gentle curve from junction to tip. Lengths vary for the most part between 25 and 45 cms., with one or two rather longer, like the remarkable piece from Bifrons (fig.70(5), measuring 70.2 cms., which may not be complete in the socket. Occasionally such lengthy pieces, as with the E1 group, are equipped with binding rings at the base of the split socket to provide support against the shaft, as from Prittlewell grave 2, (fig.70(4).

Four pieces from the Dover B cemetery were usefully associated. That from grave 50 was found with a bronze oval buckle-loop with a shield on the tongue and a shoe-shaped stud, and that from grave 63 (fig.70(2) with a simple small iron oval buckle-loop. From grave 96 came an example together with a white metal oval buckle-loop with shield on the tongue, a suite of three shoe-shaped rivets, and a low-cone shield boss. An iron buckle was found with that from grave 128, of the kind with an oval loop and a rectangular folded plate fixed with three bronze rivets as the back end. An example from Brettenham was associated with a low-cone shield boss, while another was included with the group from Sutton Hoo.

The same late pattern is repeated by the general context to which the remainder of the group might probably be ascribed. There are no clearly early pieces, but about equal numbers may be placed in either the sixth[1] or seventh century.[2]

The general continental tendency towards longer and more slender varieties of spears during the Merovingian period, already noticed with regard to angular-profiled series, is repeated for continental counterparts to this particular series. Salmo claims that this sort of spear-head begins during migration times in Finland,[3] but this kind of profile finds no place in the great Moss deposits of this time, nor in the earliest cemeteries of the Germanic migration period. But a clearly definable continental group is found throughout the Germanic area, during the second half of the sixth and the seventh century; in Frankish regions as at Lezeville,[4] Muids,[5] Rittersdorf,[6] or Selzen,[7]

1. For instance, from: Bifrons (two large pieces)(maid 620 and 811); Droxford (bm 1902 7-22 105 and 117)(fig.70(1); Folkestone gr.10; Long Wittenham gr.180a; Chessel Down (bm 69 10-11 39)(fig.70(3); Dover gs.8 and 96b;
2. Eg.: Faversham (bm 980 70); Kingston Down (liv 6305); Prittlewell gr.2 (fig.70(4) and (south 425 4); Sarre gr.138; Wheatley gr.5. And cf. six others from Faussett's east Kent collection: (liv (20,28,29,35,36, and 54).
3. Salmo H. (1938) pp.190-2, taf.xix(7).
4. Salin E. (1922) grave 181, p.134, fig.11a.
5. Coutil L. (1898-1921) Archéologique Gauloise, Gallo-Romaine, Franque et Carolingienne. II. p.36 and fig.
6. Böhner K. (1958). II p.131, taf.28(9); grave 142.
7. Werner J. (1935). grave 12, p.82, taf.3.

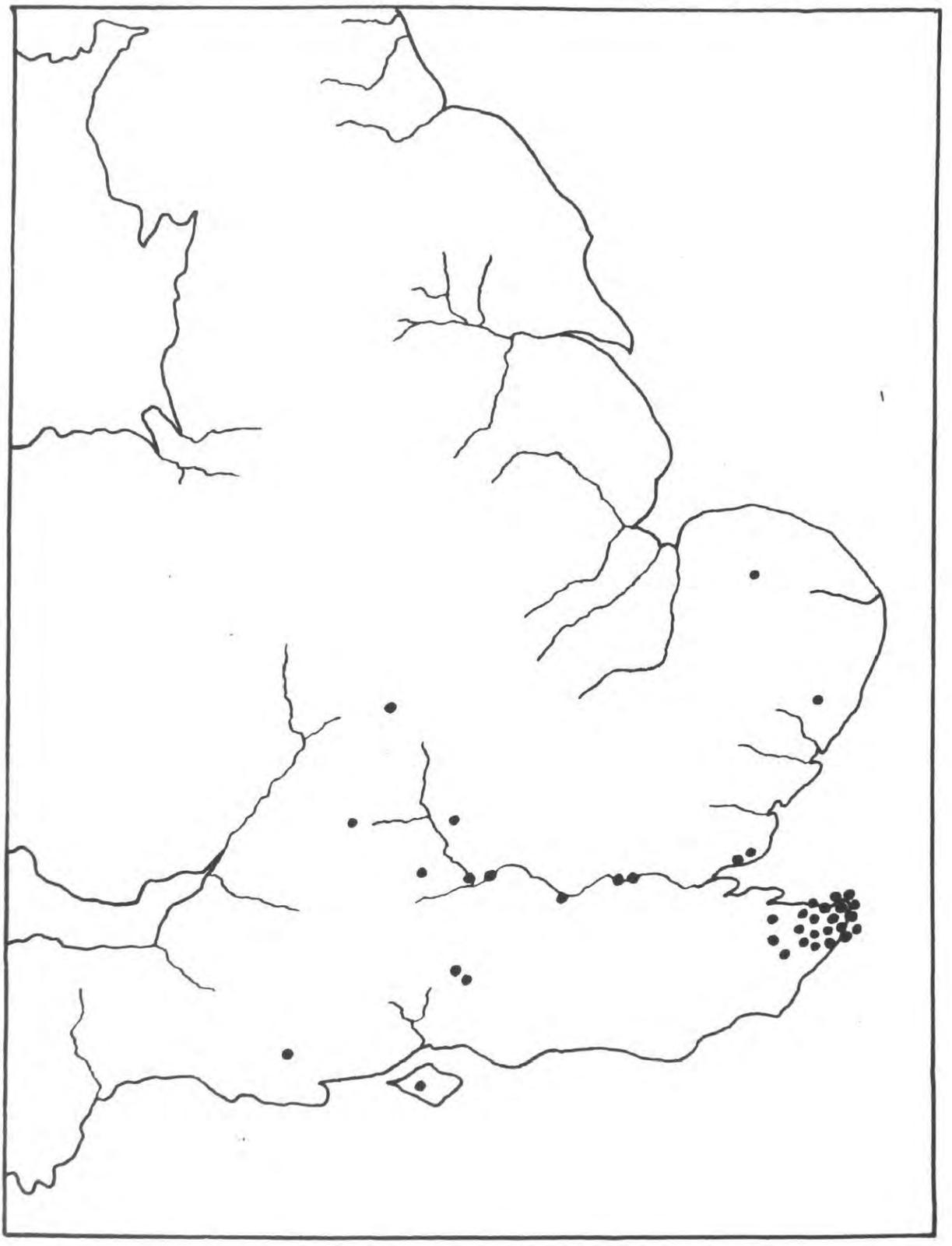


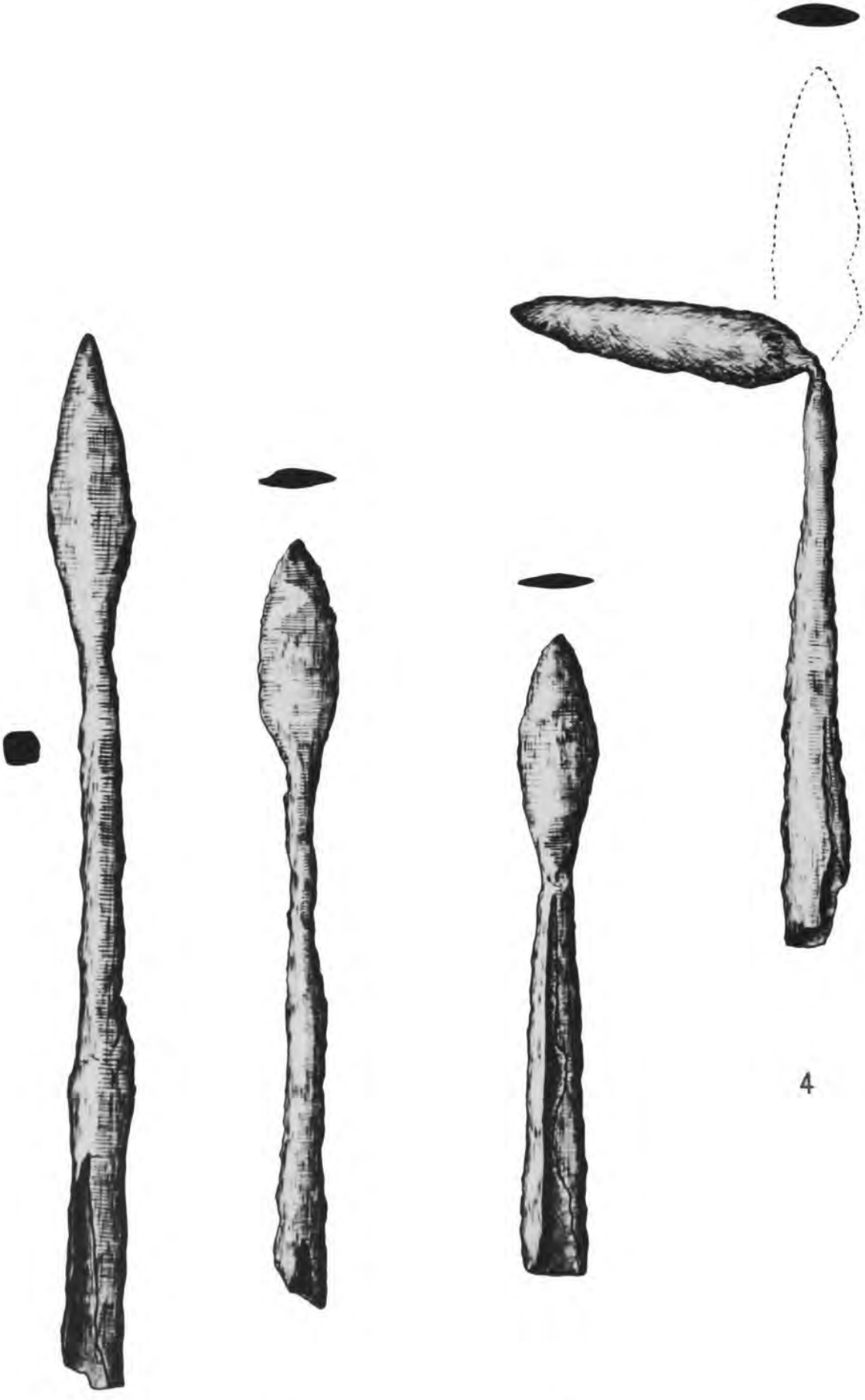
Fig.71. Geographical distribution of group J3.

or from Scandinavia, at Fjaler, (Sogn og Fjordane)[1] or Tenala;[2] or further south from Alamannic graves at Hailfingen,[3] Kornwestheim,[4] or Mindelheim.[5] This sort of spear-head, therefore, seems to have emerged at roughly the same time both on the continent and in England, beginning probably by the middle of the sixth century, and achieving favour during the later part of the sixth and the seventh century. A clear typological continuity is to be traced to the attestedly late group M4.[6]

The geographical distribution of this group (fig.71) presents a distinctive pattern when compared with other groups of the series. Instead of a widespread scatter north of the Thames valley, this group seems to be essentially "southern", with examples scattered along the Thames and one or two further south in Dorset, Hampshire and the Isle of Wight. Two single outliers in East Anglia occur, but a significant concentration is found in east Kent, where, as at Bifrons, the most extravagant examples, as with other groups, are to be found. This is just the distribution which might be expected, if the emergence of this group is to be attributed to Frankish influence from the mouth of the Rhine after the middle of the sixth century. The pattern might well be due, on the

1. Fett P. (1940) Species P, p.28, fig.35.
2. Kivikoski E. (1947) p.55, taf.62 (507).
3. Stoll H. (1939). grave 447, p.69, taf.10(14).
4. Veek W. (1931) p.226, taf.74a(4).
5. Werner J. (1955) grave 54, p.31, taf.31(2).
6. See this section p. 264, fig.89.

Fig.72. Types of Group J4.
(1) Alveston gr.58. (2) Little Wilbraham (camb 48 1639). (3) Ruskington (linc 15-40 38a). (4). Prittlewell gr.22.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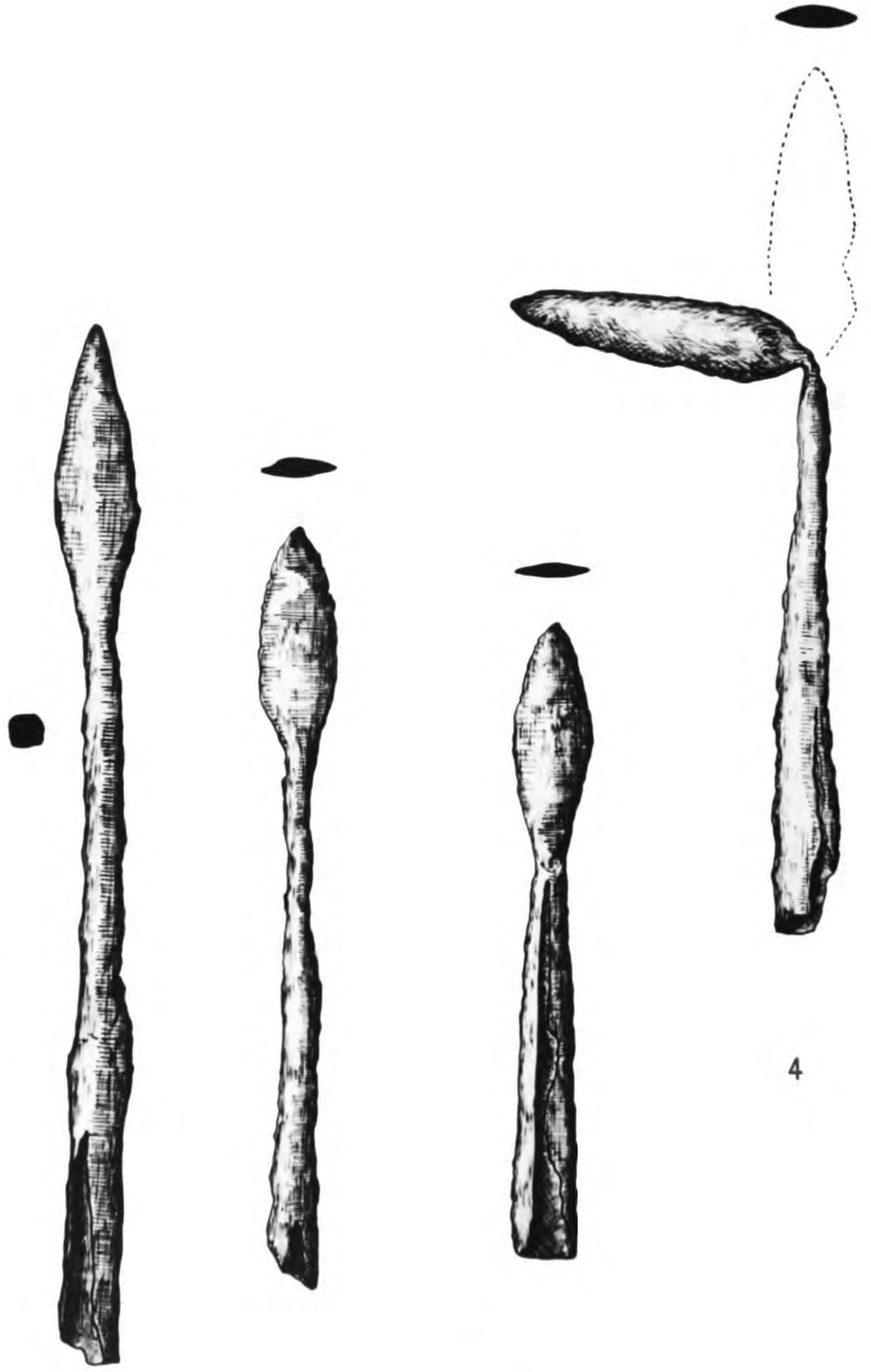
other hand, merely to the "experimental" taste in weapons that we have already noticed as characteristic of the south-east during the more settled conditions of the established Heptarchy. Certainly this group is by no means to be considered popular among Anglian groups of the settlement.

Group J4 (fig.72), is made up of spear-heads having much in common with the former group, but being smaller both in numbers and size. Here the J characteristics are seen more emphatically than anywhere else in the series, with small broadly foliiform blades on lengthy slender sockets; sometimes with shorter stouter pieces, like those from Dover B, grave 90 or Ruskington (fig.72(3), with the socket split right up to the neck, but most frequently with a long solid shank or junction piece between socket and blade. The blade is more distinctly foliiform than in the previous group, regularly curved in profile towards the tip, but with a flared effect enhanced by the relative shortness of the blade rising from a slender junction. The cross-section of the blade remains the lentoid characteristic of the series. Lengths vary for the most part between 18 and 30 cms., with the odd example, like that from grave 3 at Howletts measuring up to 55.6 cms.

Only two usefully associated examples occur. That from Lyminge grave 31 was found with a shield boss which must belong to the low-cone variety, an oval bronze buckle-loop, and an unusual brooch form which is probably to be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associated with sixth century small equal-armed forms decorated with engraved circle-and-dot motifs. That from grave 256 at Sarre was buried together with a small bronze annular brooch and a sword with a bronze pommel of the type from Petersfinger grave 21 which is probably not to be placed before the middle of the sixth century. Another example from grave 2 at Thurnham was found merely with a string of beads which at present are of little chronological value. Another was dredged from the river bed at Weybridge together with a latish axe which probably comes from about the eighth century, but this association must inevitably be a rather tenuous one. More certainly to be placed late however, is a delicately balusted piece from the Thames at Wandsworth (lm A5605). Balustering can hardly be considered a structural advantage in such a lengthy solid shank, but will probably have been adopted into this singular cleft-socketed piece, from the earliest of the S2 group,[1] or less probably from later Merovingian forms from south Germany which commonly present similarly non-structural features in any but this variety.[2]

The majority of this small group are probably to be ascribed to the general context of their cemeteries some time in the sixth century,[3] with only those from Prittlewell grave 22 (fig.72(4) and Sarre grave 64, probably at all later.

1. See this section, p.293, fig.96.
2. See this section, p.287.
3. For instance, from: Brixworth (north d.266); Alveston gr.58 (fig.72(1); Dover B gr.90; North Luffenham (oak(3); Ruskington (linc 15-40 38a)(fig.72(3).

This sort of spear-head finds no place in the great Moss deposits of the Roman Iron Age, but as we have seen, the Caesarian pilum could approximate to this form with the adoption of a flat foliiform blade,[1] and is found in Germanic contexts at this time from grave 69 at Prositz.[2] After this, however, there is an apparent hiatus in continuity, until the re-emergenece of this form, together with that of the previous group, during Merovingian times; where a recognisable group occurs throughout Frankish and Alamannic regions, mainly confined to the sixth century. Possibly belonging to the later fifth century, is an example from grave 102 at Rittersdorf,[3] but this might as well be placed in the earlier sixth century, like others from further south at Hailfingen[4] or Sindelfingen.[5] A rather short and stout example seems to survive into the seventh century, from grave 224 at Lezéville,[6] while a curiously broad and atypical series remains from Herpes,[7] perhaps to be placed with the previous group in fact. Thus much the same sort of chronological pattern emerges as with the insular group, which originating some time during the sixth century, seems largely confined to that century, and

1. See section II p.54.
2. Coblenz W. (1955). Das Gräberfeld von Prositz. p.76, taf.22 (3)
3. Böhner K. (1958) p.128, taf.28(2).
4. Graves 269 and 411: Stoll H. (1939) pp.46, 66, taf.8(2), and 9(2).
5. Veek W. (1931) p.209, taf.71a(6).
6. Salin E. (1922) p.140 fig.11c.
7. Delamain P. (1892) Les Sepultures barbares d'Herpes. p.9 pl.ii5, iii9.

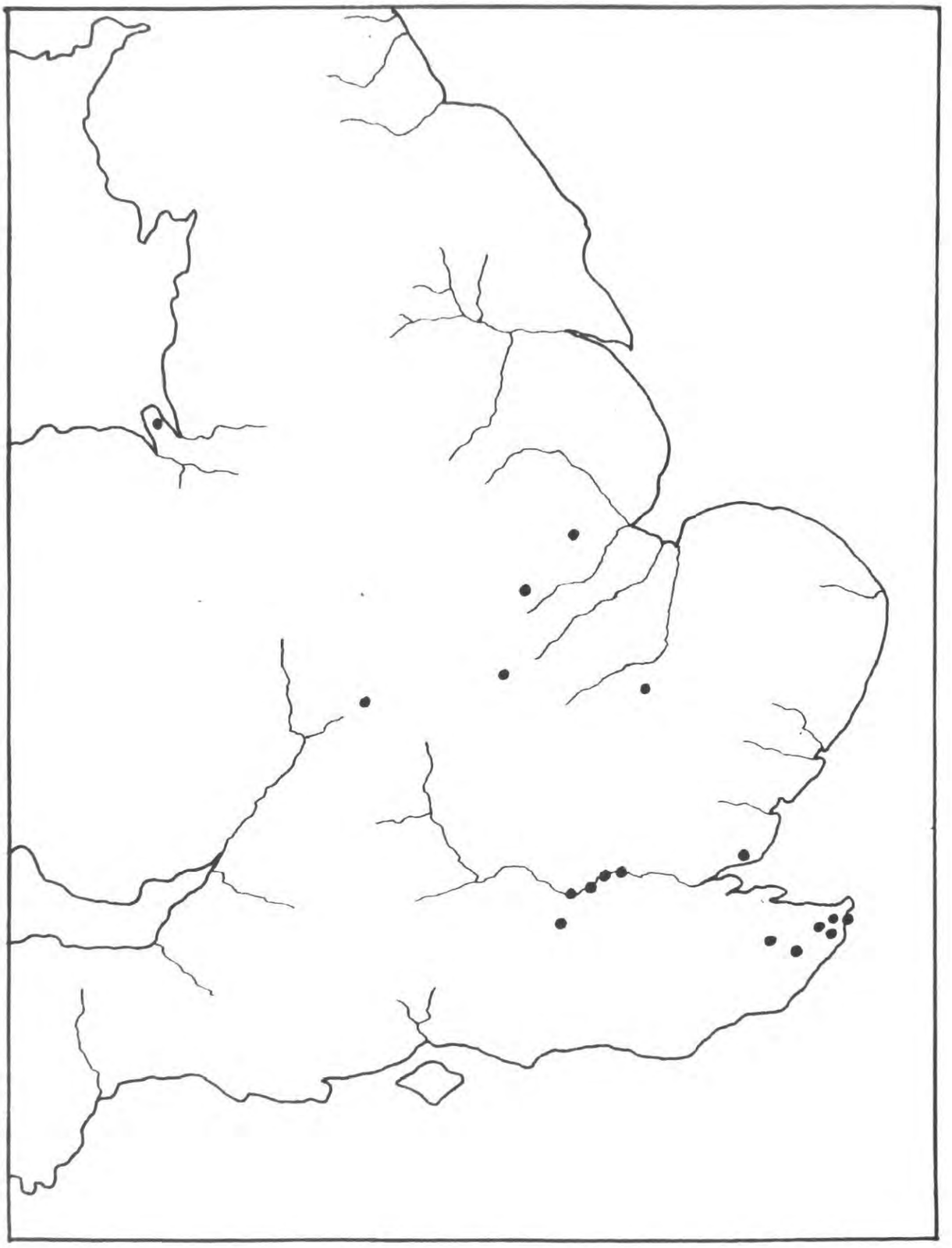

Fig.73. Geographical distribution of group J4.

perhaps its later part, with just the sporadic survival beyond into the seventh. Bu'lock, describing the example from Meols as an "angon", considers the variety to be from a "pre-Norman" date, paralleled, although giving no specific reference, in the later Anglo-Saxon cemeteries. But both insular and continental groups seem neither early nor late, and in all probability are confined for the most part to the sixth century. Unlike the former group there is no typological continuity to be traced through to any of the attestedly late Anglo-Saxon groups, and like the related forward thrusting weapons of groups C4 and L, it seems likely that this group disappeared from the normal equipment of the Anglo-Saxon warrior due to some tactical innovation during the seventh century.[1]

The geographical distribution of this group (fig.73), is markedly distinct from any other of the J series, but virtually identical with that pattern presented by the angular counterpart in group C4.[2] Numbers are sparse enough, but a clear concentration is to be seen in east Kent, with a string along the middle Thames, and one or two scattered through the Midlands, and a single curious outlier at Meols in the Wirral.

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1. See section VI passim.

2. See fig. 30

Series K is made up of a number of relatively small groups, the characteristics of which are variously modified blade forms, with the addition of longitudinal fullers, which, related to series G and H, form during the sixth century, a development which is peculiarly insular.

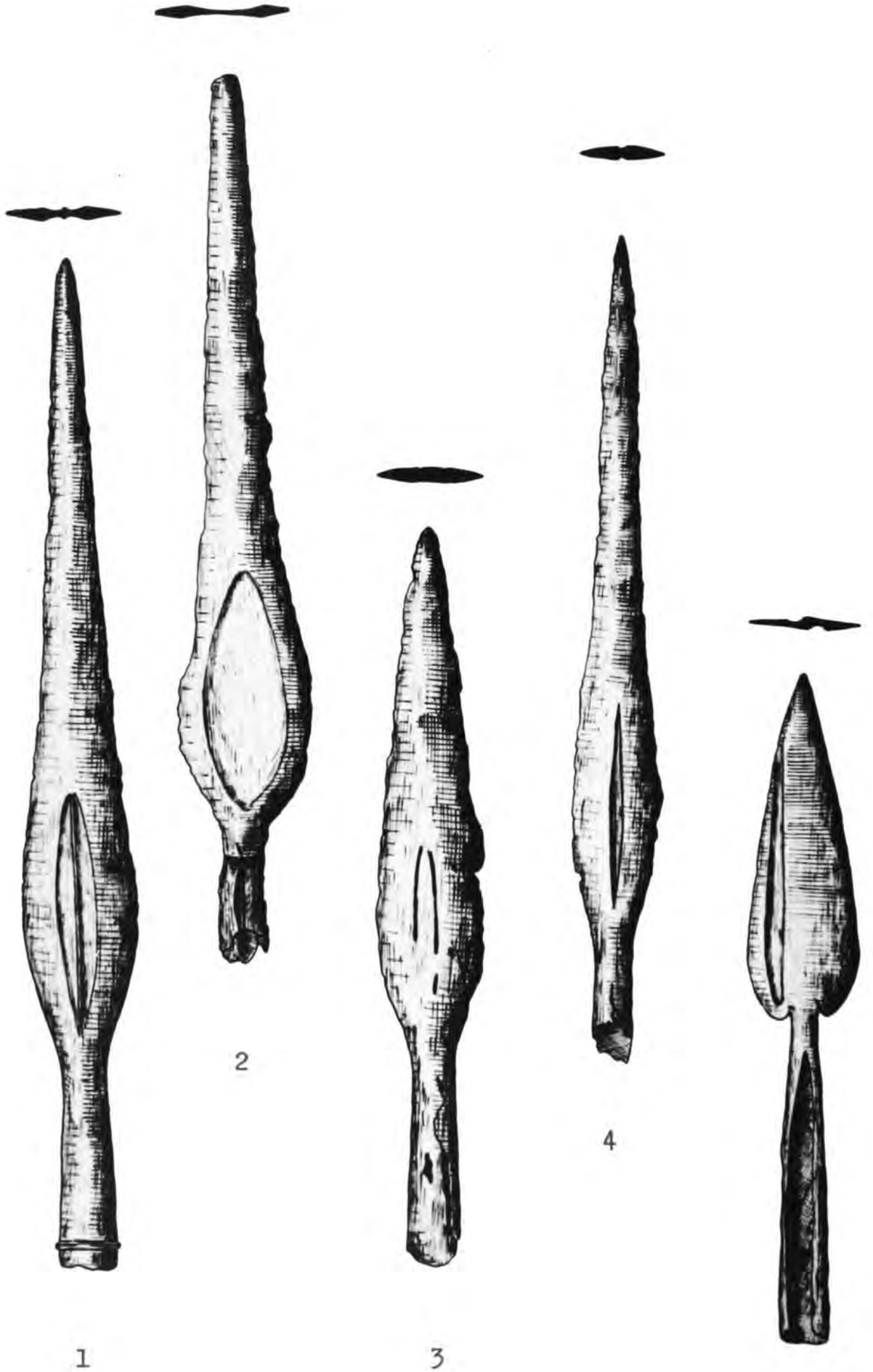
The origins of this series is to be traced clearly from a rare but recognisable group of the Roman Iron Age in Scandinavia, best typified by the first century example from Moderup in Fyn;[1] moderately long foliiform blades, the widest part towards the bottom, on a shortish closed socket, containing in the lower part of the blade, either side of a central line, a shallow longitudinal lunate fuller; the central line of the reserved metal thus taking the appearance of a slender midribbing. The norm and the greater numbers of group K1, conform to this early variety, and none are clearly to be ascribed to an Anglo-Saxon context. They are closely paralleled, on the other hand, from early Ireland,[2] and might well represent a rare pan-Celtic form.

Apart from the single atypical instance from Nydam I,[3] there appears to be a curious hiatus in the continental development of this form, between the earlier Roman Iron Age and the later sixth or seventh centuries. Apparently

1. See section II p. 63 ; in a broad-based La Tène profile.
2. See this section, p. 220.
3. See section II p. 81.

Fig.74. Types of Group K1.

(1) Battersea (1m A7347). (2) Berkshire (read 2.56). (3) Lambeth (1m A27476). (4) Brentford (1m 0.1790b). (5) London (gm 7761).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suddenly, then, without more immediate antecedent forms, a small number of such spear-heads are found in two widely displaced centres: in south Germany and Finland, with no recognisable equivalent distributed between. The traditional narrow short-socketed form is found in grave 11 of the seventh century Alamannic cemetery at Mindelheim,[1] and on a curiously lengthy socket from roughly the same area and same time, at Ehningen.[2] Both varieties occur in single instances at Kaaringa in Finland,[3] both of which Salmo, apparently ignorant of insular development, ascribes to introduction from south Germany.[4] This curious late emergence remains unexplained, however as the forms are sensibly distinct. It is hardly to be attributed to reintroduction from England, as there is no evidence for the insular groups having survived to this late date.

Group K1 (fig.74), mostly conforms to the traditional form inherited from pre-Migration times. Slender foliiform blades, wider towards the bottom in a characteristic La Tène III manner, and lentoid in cross-section, are found on slender junctions and moderately short, carefully welded

1. Werner J. (1955) p.26, taf.26(3); and cf. an unassociated and unregistered example from Keinsachsenheim, (Württemberg); (Stuttgart Museum.)
2. Veek W. (1931) p.189, taf.73b(3).
3. Salmo H. (1938) pp.247-8, taf.V(18); and cf. Kivikoski E. (1947) pp.54-56, taf.65(525-6).
4. Salmo H. (1938).

sockets, more often than not with two or three scribed string lines on the line of a transverse rivet; this occurs commonly during the Roman Iron Age,[1] and in this group is seen on examples for instance, from the Thames at: Barn Elms (lm A24427), Battersea (lm A7347) (fig.74(1), and Brentford (lm 0.1777). Double lunate fullering, shallow either side of a narrow central line, often no more than 2 mms. across, in the lower part of the blade, giving the appearance of midribbing whilst conserving material, forms a weapon, together with a slender junction piece, entirely lighter in construction than those generally found in Anglo-Saxon contexts. The original length of this group must have varied little about 33 or 34 cms. A small number of singular variants occur, each representing a degeneration from the norm. From the Thames in Berkshire comes an example, more exaggeratedly wide at the base in the La Tène manner, where the lunate fullering has been replaced by a single broad shallow depression; the junction indicating a fragmentary but originally closed socket bound with thick sheet copper; (read tcb 2 56) (fig.74(2). From the Thames at Lambeth, on the other hand, comes an example where the lunate fullering has been reduced to two curved scribe lines on the surface of a rather weak and thinly lentoid section blade; grooving entirely distinct from that used with ornamental effect

1. For instance, on foliiform spear-heads from Gächingen, Stuttgart Museum, unregs.; or the Thames at London, (bm 56 7-1 1441).

on seventh century south German blades; (lm A27476)(fig.74 (3).[1] From Barlings comes an example in which the lunate fullering has been considerably narrowed, while in that from the Thames at Brentford (lm 1790b) (fig.74(4), this characteristic is reduced to no more than a simple slit in the lower part of the blade, although still recognisably curved in outline.[2]

Wheeler,[3] followed by Jope,[4] considered a Saxon date most likely for this group, but in fact not one is found within an actual Anglo-Saxon context, and in view of the fact that corrosion has rarely disfigured similar superficial features in associated subsequent groups, it seems unlikely that examples of this type remain merely unrecognised. With only chance native finds to rely upon, none of which are dateable by any kind of association, it is difficult to assess how late this sort of spear-head may have survived, but indications from Lankill (Fermanagh)[5] suggest that Celtic warriors may have used this kind of blade at least as late as the sixth century in Ireland, as in southern Germany and Finland.

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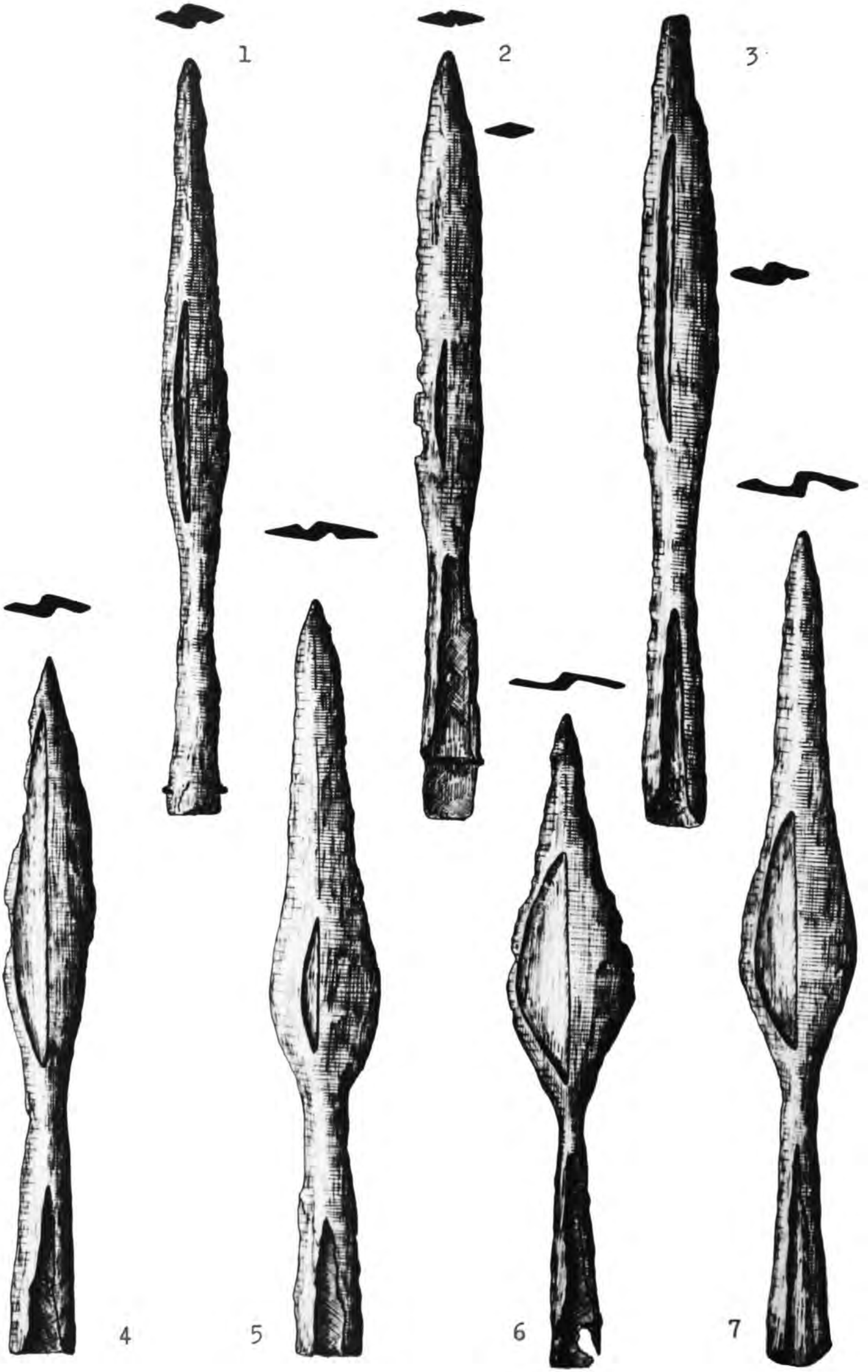
1. and cf. another from the Thames at Hampton Court (lm unregs).
2. And cf. another from the Thames at Battersea, in a broader more Celtic looking blade, (bm 59 1-22 5).
3. Wheeler R.E.M. (1935); referring apparently to the possible seventh century example from Ehningen, and referring incidentally, and inaccurately to an example of the "Vendel" type, misled probably by the published drawings of the etched lunate decoration, from Reutte.
4. Jope E.M. (1959) An iron spear-head of Germanic type from Fermanagh; UJA. 3rd.S. XXI, pp.16-7.
5. Ibidem, pl.III(1).

While there is no evidence for the adoption of this form among Germanic settlers, the form provides a convenient typological origin for the whole K series; which remain apparently peculiarly insular. A single example, again unfortunately unassociated, from Blackfriars in the City of London, represents a conveniently overlapping form, (gm 7761)(fig.74(5), between Celtic and Germanic variants. The blade and socket are of more or less equal proportions; the blade of a familiar La Tène profile, foliiform, with the basal part of the greatest width, and the slender junction emphasised by small notches beneath the blade. The socket is cleft, however, in an exaggeratedly Saxon manner, for its whole length, unlike the Celtic examples, and yet the single rivet hole is made at the back of the socket mouth, facing the cleft, clearly reminiscent of Roman or Celtic forms with closed sockets which make this position tenable structurally. The fullering is singular, too, in being for the first time, typologically, single, and displaced to the left hand half of the blade, as in subsequent Saxon groups. This curious composition of Celtic and Saxon elements almost demands the supposition of native craftsmen working for a new market, and although this must remain merely speculative, some such insular origin for this series, K2 to 6 must be sought, in consideration of the complete absence of any continental parallel.

Fig.75. Geographical distribution of group K1.

Fig.76. Types of Groups K2 (1-5) and K3 (6-7).
(1) Abingdon gr.57. (2) Basset Down.
(3) Glen Parva. (4) Brentford (lm 0.2062b)
(5) Guildown gr.111. (6) Hanwell.
(7) Droxford (bm 1902 7-22 90).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The geographical distribution of this group K1, (fig. 75), is singular, most examples having come from the bed of the Thames in its middle and lower reaches. Single examples from Barlings in Lincolnshire and Meare in Somerset, together with Irish examples, argue an originally widespread distribution among Celtic peoples in all parts of Britain, but in view of the consistently "Saxon" distribution of the remainder of the K series, and the number which then come from the bed of the Thames, the pattern presented by this group might not be arbitrarily insignificant.

Group K2 (fig.76(1-4), would appear, a priori, to represent an early typological development out of the "Celtic" group K1, presenting slender foliiform profiles, moderate in length, occasionally with closed sockets, sometimes having the slightly wider part of the blade towards the junction - a traditional feature common in pre-migration times, (fig.76(1). These blades invariably have a narrow fuller displaced to the left hand side, and usually confined to the lower half, of the blade. In the example from Basset Down, this fullered feature is reminiscent of the K1 piece from Barlings, narrow and more centrally placed, (fig.76(2). In others, where the blade presents a more regularly foliiform profile (fig.76(4-5), and where sockets seem never to have been

closed, the fuller is broader and longer, filling a larger part of the side of the blade. Lengths of the group are both longer and shorter than those of group K1, but vary only between 25 and 35 cms.

This physical development is earliest discovered in a rare La Tène profile from the Celtic context of the singular early Roman Iron Age find at Hofheim im Taunus,[1] after which brief appearance, it disappears from continental development.

Of the narrower fullered examples, none is usefully associated, but the general chronological context of those from, for instance: Basset Down, Abingdon (ash(1), and Glen Parva (fig.76(3), is likely to be centred in the first half of the sixth century, while that from Kempston (bm 91 6-24 86) is as likely to belong to the early as the late group of material from that cemetery. That from Abingdon exhibits the probably early feature of a closed welded socket, like others from the Thames at: Sonning (read 1.56), Surbiton (read (1) and lower down at Battersea (1m A8840). A single rather atypical narrow piece from Biscot was supplied with languets, but this might well have little chronological significance.[2]

Of those with rather broader fullers, that from a grave

1. Ritterling E. (1913) Das frührömische Lager bei Hofheim im Taunus, p.159, taf.xvii(10,12); two examples in regularly foliiform blades with closed sockets.
2. See section IV, p. 381.

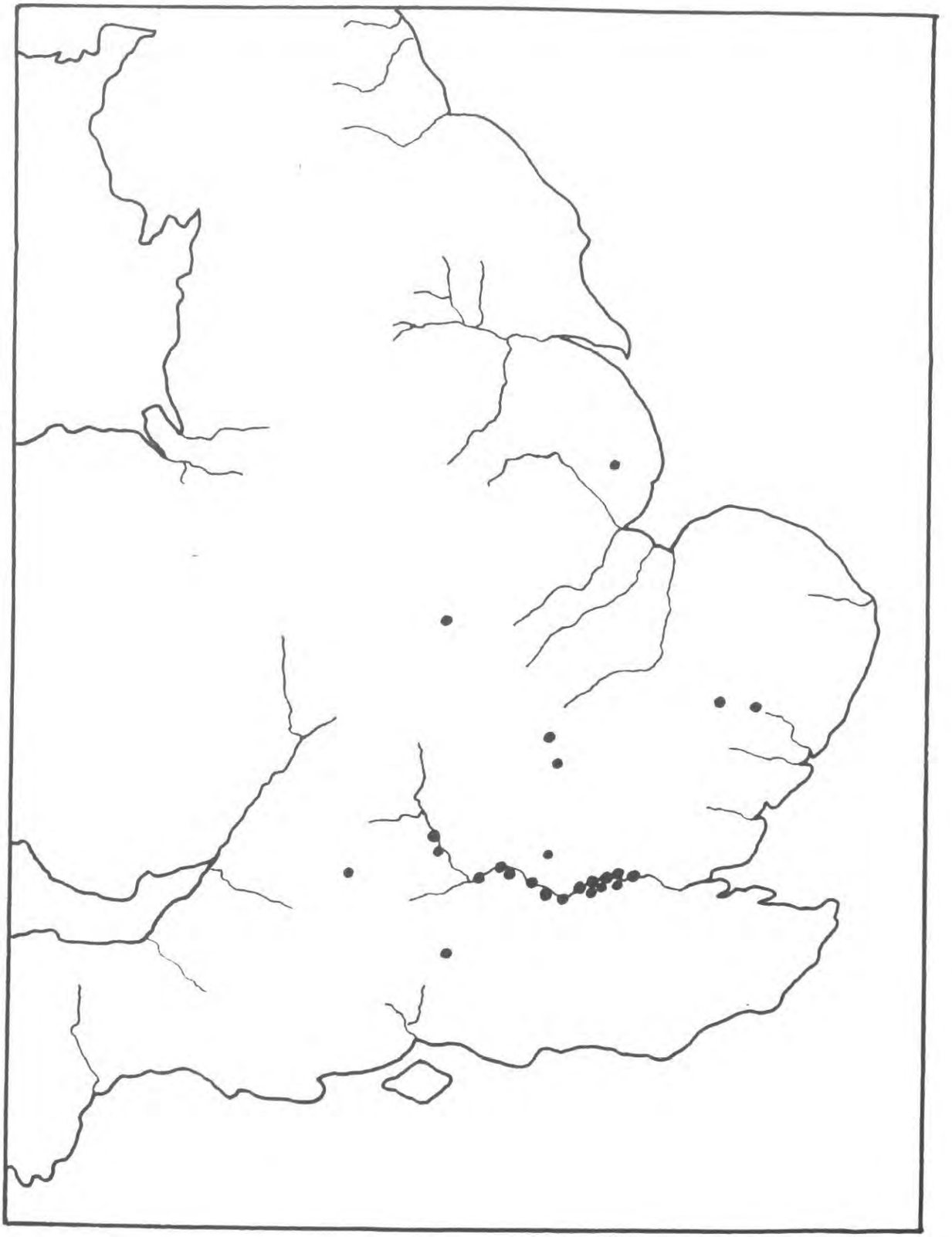


Fig.77. Geographical distribution of group K2.

at Ixworth Thorpe was found together with a carinated shield boss and a Frankish sheet bronze carinated lugged bowl. That from Droxford probably belongs to much the same time in the sixth century.

It seems, therefore, that while the chronological range of this group is confined to a relatively early period soon after the beginning of the settlement, those with narrower fullers and often closed sockets are to be considered as typologically antecedent to the development of broader fullers in the middle of the sixth century. No example, however, seems likely to have survived the end of this century.

The geographical distribution of this group (fig.77), appears distinctly "Saxon", with the majority of examples scattered thickly along the middle and upper Thames valley, and one or two dotted through the Midlands as far as Scrafield. It is, for the most part, those with broader fullers which lie on the periphery of distribution, at Scrafield or Ixworth Thorpe, and it seems probable that, with none from Kent or the south-east, the initial development of this series is to be regarded as begun with West Saxon expansion, only reaching more distant areas later.

Group K3 (fig.76(5-7), is made up of a small number of spear-heads, rather distinct in profile from those of

the previous group, although still basically foliiform. Here, the tendency towards a broadening in the lower part, noticed in the K2 example from Abingdon, is emphasised, with the fuller becoming even more broadly lunate, and occasionally almost filling the wing of the lower part of the blade. The example from Guildown grave 111 (fig. 76(5) perhaps represents a formal overlap between the two groups, being generally narrower, and with a correspondingly narrow fuller. In profile this group stands in the same relation to the associated group H1, as K2 does to H2, but with more equal proportions between blade and socket. Lengths vary between 25 and 35 cms.

A relatively high proportion of this particularly small group seem ascribable to an early date. One example probably from a double grave at Hanwell (fig.76(6), was found with gilt cast bronze saucer brooches decorated in Style I zoomorphic ornament, and an early looking pot stamped with horse-shoe motifs. Another from Highdown grave 14 was found with a mamiform glass bowl of Harden's Westbere type (b), with a rounded rim and base and concave sides, deriving from Roman forms, and dated to the fifth or earliest sixth century.[1] An example from Worthy Park grave 50 was found together with a bronze mount decorated in Jutish style A; while another rather

1. Harden D.B. (1956) pp.143, 165.

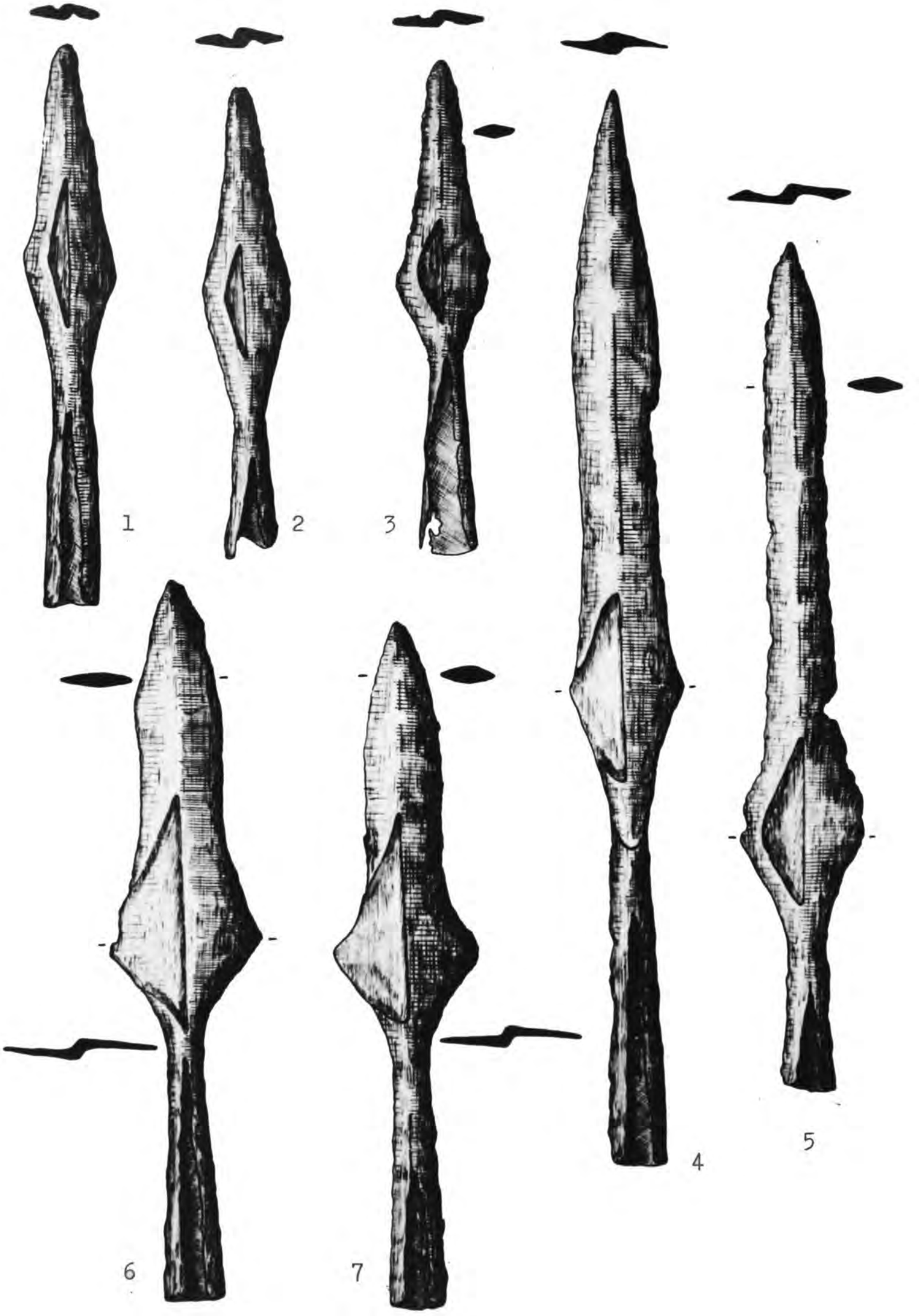
Fig.78. Geographical distribution of group K3.

narrower piece, similar to that described from Guildown, was found with a studded carinated shield boss. That from Guildown grave 111, is likely to belong to the generally early context of this cemetery, although another from Droxford (bm 1902 7-22 90)(fig.76(7), can probably only be tentatively ascribed to some time in the sixth century.

In general this group might be regarded as originating soon after the first settlements along the southern Downlands. None of the few examples illustrate the sort of closed sockets familiar from the previous group, but the profile, in conformity with the other early groups A2 and H1, seems clearly derivative; with none surviving the end of the sixth century.

The geographical distribution of this group (fig.78) is even more distinctive, being confined to a small group from the middle Thames, and others from the southern downland of Hampshire, Surrey and Sussex. With the obviously early date of this group as a whole, this significantly southern distribution, with no example in Kent, nor any clearly north of the Thames valley, argues an early "West Saxon" insular development, with nothing, but the profile in general, at all derivative.

Fig.79. Types of Groups K4 (1-3) K5 (4-5) and K6 (6-7)
(1) Alveston gr. 30. (2) Petersfinger gr.6. (3) Shepperton (guild S5958). (4) Brentford (bm 012065). (5) Droxford (bm 1902 7-2 119). (6) Kempston (bm 91 6-24 102). (7) Harnham Hill gr.14.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Group K4 (fig.79(1-3), represents the adoption of the characteristic K series fuller into the angular-profiled blades of group F1. The profile and proportions of the blades are just those of group F1, varying between 15 and 25 cms. in lengths, with the blade rather longer than the split socket and junction piece together. The angle of the blade is fairly high, with an obtuse angle sloping towards the junction, and a slight concavity above, towards the tip. In most the fullering is short, and confined to the angle of the wing, it tends to be triangular in outline.

Only one example of this group comes from the bed of the Thames, and the remainder from Saxon graves. Only one rather atypical example; that from Worthy Park grave 49, with a longish socket inlaid with bronze bands at the mouth, is dateable by association; and that only to some time roughly within the sixth century, by a small bronze-bound bucket. Others of the group are probably all to be ascribed to some time in the sixth century in the general contexts of their cemeteries.[1] So that both chronologically as well as typologically, this group is probably to be considered a later development of the earlier groups K2 and 3.

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1. For instance, from: Alveston gr.30 (fig.79(1); Barrington A (bm 76 2-12 61); Brixworth (north d.265); Cassington (ash 122) Mitcham (king L29); Petersfinger gr.6 (fig.79(2); West Stow (bury K72).

Fig.80. Geographical distribution of group K4.

The geographical distribution of this small group (fig.80) supports the same picture. The pattern is still distinctly southern, but rather more are scattered through the Midlands, though no example from this group reaches either the attestedly Anglian northe~~r~~, or Kent and the Jutish south-east.

Group K5 (fig.79(4-5), is made up of an even smaller number of spear-heads, representing an extreme version of the former group. Large blades with usually shortish cleft sockets, vary in length from about 30 cms. at Bekesbourne (cant 7603) to that from Chessel Down (bm 69 10-11 19) measuring 45.8 cms. The blades conform in general character to that of the F series, with a concave curve above the lower based angle, and then a gentle curve towards the tip. The profile of this group is by no means identical with any of the F series however, with its slender proportions, low wings and lengthy tongue-like upper blade.

No example is to be dated by association, but each of those from cemetery contexts seems likely to belong to the sixth or earliest seventh century: Bekesbourne II (cant 7603); Chessel Down (bm 69 10-11 19); Droxford (bm 1902 7-22 119)(fig.79(5); and Nassington (pet(2).

The geographical distribution of this group (fig.81), is even more widespread than the former, including the

Fig.81. Geographical distribution of group K5: ● and group K6: o

only examples from the whole of the K series clearly within the "Jutish south-east": at Bekesbourne in east Kent and Chessel Down in the Isle of Wight. But on the other hand, only a single example occurs on the line of the Thames, which forms a focus for the greater number of the K groups. This conforms perfectly, however,,with the south-eastern taste during the later sixth and seventh century, for the more extravagantly made spears of any series.

Group K6, (fig.79(6-7), composed of just five spear-heads, forms a distinctive sub-group of K5. Much shorter, varying between 22 and 29 cms., and relatively much broader, the F characteristic is correspondingly more exaggerated being much larger, with the proportions, wide wings and tongue-like blade of group G1. The lower angles of the blade are filled almost entirely with a broad triangular fuller, occasionally flattening towards the apex of the triangle, with little or no ridge at the edge of the blade at all.

Like the previous group, no example is to be dated by association, but all of the small group are probably to be placed on grounds of general contexts to some time in the sixth century, like those from: Brixworth (north d.275) Frilford (ash 1868); Harnham Hill grave 14, (fig.79(7);

Horton Kirby (maid 40 1933); and Kempston (bm 91 6-24 102) (fig.79(6).

It is not possible to draw any firm conclusions from the geographical distribution of such a restricted group as this, (fig.81), but with just one or two in the Thames valley and east Midlands, and none in the "Anglian" north, or "Jutish south-east", it can be said to conform to the general pattern of the series.

Series L comprises the small number of, for the most part poorly preserved, barbed spear-heads of the pagan Anglo-Saxon period. The introduction of a barbed element into the Germanic repertoire began, as we have seen, during the Roman Iron Age, perhaps originating in the third and fourth centuries A.D. as a version of Vegetious Renatus's degenerated darts, which he describes being enthusiastically adopted by the barbarian auxiliaries.[1] Certainly from that time onwards, the inclusion of a barbed dart becomes a regular feature of the "sets" of weapons deposited by custom in Germanic graves of the northern sector, and the form is dominant among the weapons in the great Moss deposits towards the end of the Roman Iron Age.[2]

By the time of the first Migrations, the large variety of forms represented, for instance, at Vimose, have been

1. See section II p. 57.
2. See section II pp. 64, 80.

reduced to just two relatively well defined groups. What was probably the earlier form, found in large numbers in the Vimose deposit,[1] has wide barbs placed forward on a flattish blade, lentoid in section, and with an invariably facetted junction and socket, is either long or short overall, varying between some 19 and 27 cms. in length. Probably a later development, still found at Vimose, but occuring in greater numbers at Nydam I,[2] is generally much shorter, though still varying between 15 and 28 cms. with a narrower, but proportionately longer blade, quadrangular in section with thinner and longer barbs, often placed close to the shank, far back behind a strickening in the blade. The sockets are proportionally shorter than in the previous group, but still invariably facetted in the same way. An accurate assessment of the development of this form subsequent to the period of the great Moss deposits, is made difficult by the delicate constuction, particularly of the head of the weapon, which, with corrosion, is often either missing or unrecognisable. It seems likely, however, that while found in north-west Europe during the later fourth century at Furfooz,[3] and into the fifth at Krefeld Gellup,[4] the former group

1. See section II p. 64m fig.3.
2. See section II p. 80, fig.5.
3. See section II, p. 80, n.4.
4. Steeger A. (1937) Ein frühfränkisches Kreigergrab von Krefeld-Gellup; Germania XXI, p.186, taf,40(3-4); these are perhaps sufficiently small to represent arrows, however, as the excavator thought.

is already being abandoned for a modified version of the latter. In Scandinavia Fett recognises a continuity of this group amongst a wide variety of forms,[1] but finds no evidence for the survival of any example of barbed dart beyond the end of the sixth century. The Roman Iron Age Age feature of socket-facetting he considers not to be found after the middle of the fifth century.[2] Although barbed javelins, most frequently tanged rather than socketed, and with heads of the second type described seem to survive at least until the end of the seventh century in Finland,[3] the depiction of such blades in the helmet plates from Vendel graves XIII and XIV (fig.112)[4] might well be much older than the date at which it was deposited.[5]

Further south, the characteristic Frankish development takes the form of a considerable lengthening of the second Roman Iron Age group. Long overall, sometimes more than a metre in length, they are made up for the most part of a lengthy slender solid shank, usually quadrangular in section above and round below towards a relatively short split socket, sometimes bound with one or more sturdy binding-rings. The head is usually short and pyramidal

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1. Fett P. (1940) pp.11-18, fig.8-15.
2. Ibidem, p.17.
3. Salmo H. (1938), pp.209-31; and Kivikoski E. (1947) p.55, abb.515-7.
4. Stolpe H. and Arne T.J. (1912), pl.xxxvi(4-5), xlii(1).
5. About 600 A.D. (Lindqvist S. (1936) p.320)

in form, or if longer, invariably quadrangular in section with a strickening below, in front of long and delicate barbs lying close to the upper part of the shank. It is this form which has apparently replaced the earlier by the fifth century, from which time examples are found surviving through into the seventh century. They occur most extensively throughout the Frankish regions, at, for instance: Samson,[1] Königsbruch[2], Chassemy, Cys la Commune or Arcy Ste. Restitue (Aisne);[3] they are included in furstengräber at Planig[4] and Morken,[5] and survive into the seventh century further south at Eichloch or Ittenheim.[6]

This kind of spear or javelin head is found distributed widely throughout the Germanic sphere, in Saxon, Alamannic or Langobardic contexts, but only sporadically so,[7] and it characteristically remains at this time the weapon par excellence of the Franks. It is almost certainly this

1. Marmol E. del (1860) Ann. Soc. Arch.Namur, VI, pp.354-7, 367-9.
2. Zeiss H. (1937) Altschlesien, VII, p.34 ff.
3. Moreau F. (1890) Fuilles de Cys la Commune; Collection Caranda, pl.102; (others; like that from Arcy gr.1941, with two binding-rings on the socket and wiring binding below, in St. Germain-en-Laye Mus. unregs). Cf. another from Epinal (St. Germain regs. 24609). Two probably local examples in Nancy Museum (unregs) exhibit longitudinal insets either side of languest in the lower socket, bound in with four sections of wire binding.
4. Kessler P.T. (1940) Merovingisches fürstengrab von Planig in Rheinhessen; Mainzer Zeitschrift, XXXV, p.1, abb.2.
5. Böhner K. (1958(2) p.444, abb.8(2).
6. Werner J. (1935) p.94, taf.21(3); (1943) Der Fund von Ittenheim, p.28-9, abb.3(1).
7. Werner J. (1943) passim; (1958) Kreigergräber aus der ersten Hälfte des 5 Jarhunderts zwischen Schelde und Weser; Bonner Jarhb. CLVIII, p.384, abb.10(1); Veek W. (1931) p.189, taf. 74A(7); Franken M. (1944) Die Alamannen zwischen Iller und Lech, p.22, taf.24(19).

type of weapon, rather than one of the lugged varieties as earlier commentators though,[1] which Sidonius Apollinaris describes carried together with the fransisca by the retinue of the Frankish prince Sigismer in 407 A.D.: lanceis uncatis securibusque missilibus.[2] And it must be this form too, which Agathias describes in use among the sixth century warriors of Theodobert during their invasion of Italy, and called by them angones.[3] This Germanic loan-word is glossed by rather later Byzantine scholars like Suidas and Pachymeres, and most usefully by Eustathius:

> Angon species hastae Francicae neque nimis parvae, ut aiunt, neque magnae; quae fere tota ferro comprehenditur, in hoc dissimilis memorato apud Lycophronem sibymno: hoc enim telum est totum ferrum.
>
> (Commentarii, II, sect. 1854, 22).

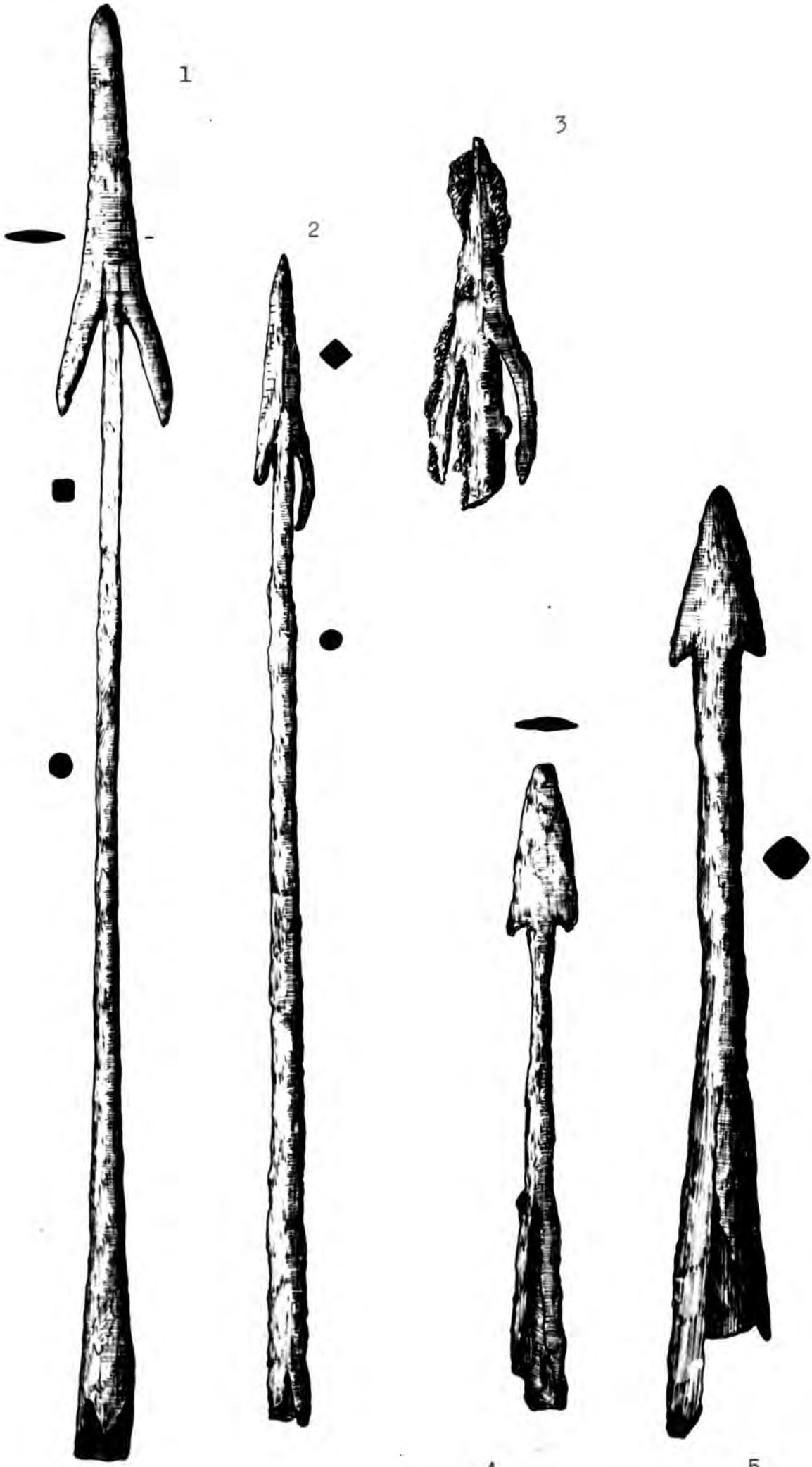
The words of Sidonius in particular, together with what we know of the manner of use of this weapon, is particularly reminiscent of the description given by Gildas of the northern barbarian attack at the departure of the Romans:

> Interea non cessant uncinata nudorum tela, quibus miserrimi cives de muris tracti solo allidebantur.
>
> (De Excido Britanniae 19) [4]

---

1. Keller M.L. (1906) p.30, follows Wylie W.M. (1832) p.53, in equating the lancea uncata with some of the downward curving lugged variety (fig.98(3) on the illogical inference from the correct premis that this form is too heavy to act as a missile. They assume that Sidonius and Agathias refer to two separate forms, for which there is not the slightest indication. This lugged variety does not in fact seem to occur until at least a century and a half after Sidonius' letter, while the geographical distinction between the two forms suggested by Wylie W.M. (1855) pp.80-1, is no longer evident.
2. Lib. VI, epist. XX (3).
3. Suidas, Lexicon, I, p.34(329); Pachymeres, Opera, Cols.715-6
4. Followed by Bede, Eccles.Hist.I, 12.

Fig.83. Types of Groups L1 (1-3) and L2 (4-5)
(1) Carvoran. (2) Strood.
(3) Sutton Hoo (bm(7). (4) Bifrons
(maid 620). (5) Kingston (king 378).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Gildas is not concerned to distinguish features of particular tribes in his account of the general depredations of northern barbarians, but in fact no such weapons are known amongst the Picts or Scots. Could this be a conflated reference to weapons more characteristic of Germanic oversea war bands also engaged in raids at this time along the whole of the coast? It is curious that the two typologically earliest forms known from this country both come from what are probably early sites on the Wall at Carvoran and South Shields.[1]

Only a very small number of barbed darts have been found in England, and may be gathered into some three limited groups:

Group L1 (fig.83(1-3), is the largest, made up of about a dozen examples, most nearly conforming to continental varieties, although very many are in a poor state of preservation. Those from Carvoran and South Shields in the north conform to the first continental group of barbed spears familiar from the Nydam deposits.[2] The Carvoran example seems to have been admirably preserved by conditions in the well of the Roman fort, and presents many of the traditional Nydam features: a narrow flat blade, lentoid in section with broad cut-out barbs placed

1. See below.
2. See section II, p.80.

well forward on a lengthy solid shaft, tetragonal in section above and rounded below towards a closed welded socket. Complete, this measures some 55 cms. overall, (fig.83(1). The South Shields example, less well preserved, but obviously representing the same type, is shorter and more nearly the length of the Nydam I pieces, at about 30 cms.

Others from England seem to correspond in general to those of the later Frankish development of the later fifth to seventh centuries. Long for the most part, the High Down fragment measures some 75 cms., and that from Croydon at 96 and from grave 89 at Sarre reportedly 106 cms. in length. Others however, albeit corroded and broken, were obviously rather shorter, like the curious piece from grave 98 at Sibertswold, which perhaps originally measured no more than 30 cms. The great part of this length is taken up with a slender solid shank, which, as with the Frankish remains, is invariably too corroded to discern a significant section, but which in all probability was normally round. Sufficient remains, however, to show a short cleft socket to have been usual, expanded in diameter from the narrow shank, and which in at least two cases - from Taplow and Sarre, seems to have been bound with wide binding-rings. A fragment from (?) Bifrons (maid(1) is inlaid in turn with bronze bands in the manner of some continental examples. The heads remain as rarely as the socket pieces, but seem for the

most part to have been made up rather differently from the current Frankish group; having not pyramidal, but lengthy square-sectioned tips, and thin barbs behind, with no strickening, and save for a possible instance in unpreserved example from Croydon, in no recognisable case are these laid close to the shank, but curved outwards; (fig.83(2-3). It is impossible to draw any firm conclusions about the form of this group in view of the present parlous state of so many, and it is likely that a considerable degree of variety existed. Enough that is distinctive remains, however, to preclude the entire dismissal of this group as merely so many continental imports, although the majority belong to the later variety described. Many examples, like those from Northfleet (grav(2) or Taplow, currently have no heads at all, but seem to belong to this group from their general proportions.

The two recorded examples of the first, and earlier, group come, presumably, from late Roman contexts: from the well filling of the Wall fort at Carvoran (Magna), and from the upper occupational levels of the east cost Wall depot at South Shields (Arbeia) which we now know to have been occupied throughout the fourth century.[1] Stevens

1. Kent J.P.C. (1952) Coin evidence, and the evacuation of Hadrian's Wall; Tr.C&WAAS. LI, pp.4-15 and passim; and cf. Birley E.B. (1958) The hinterland of Hadrian's Wall; Tr. Durham & Nb. AS. XI, pp.61-2.

suggests that during Theodosius's reorganisation of the later fourth century after the barbarica conspiratio of 367 A.D., the Wall was manned merely by local British militia, with the troops of the new "Count" restricted to the Saxon shore in the south-east.[1] But during the third and fourth centuries the regular garrison of the Wall had been made up in part of Germanic auxiliaries.[2] And during the latest period of Imperial rule there is some indication that such groups of Germanic confederates as: Alamanni, Marcomanni or Burgundians were settled in parts of Britain,[3] and no doubt partly at least to act as a "buffer state" in the northern frontiers.[4] In any case, if these two earliest pieces are to be placed typologically about the same time as the Nydam I deposit, they may have been carried with equal plausibility by those both attacking and defending the north during or shortly after the barbarica conspiratio.

Of the second group, a relatively large number are dateable, covering much the same chronological range as the Frankish group of which they form the counterpart.

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1. Stevens C.E. (1940) The British section of the Notitia Dignitatum; Arch.J. XCVII, p.133 ff.; a picture supported by the distribution of early Germanic military fitments in Britian; Hawkes S.C. (1962) p.20.
2. Epigraphic evidence: Birley E.B. (196) Research on Hadrian's Wall, p.183 et passim.;
3. Ammianus Marcellinus; Historiae, XXVII 8, 1 and 5; Zosimus, I (68); Dio Cassius, Roman History, LXXXI (16); and cf. White D.A. (1961) pp.73-82.
4. See this section, p.119, n.1.

Probably to be placed relatively early are those from the contexts of cemeteries at Croydon, Highdown and Northfleet (grav(2). A larger and a smaller from the one grave 69 at Abingdon probably come from some time in the sixth century. Certainly later must be that from Strood (fig.83(2) which was found with a low-cone shield boss, a rouletted Frankish earthenware bottle-vase, an oval-looped iron buckle with a rectangular folded plate, and another spear belong to group C2. Another comes from Taplow, and two from Sutton Hoo (bm(2 and 7) (fig.83(3). In all probability those from Sarre graves 89 and 135, and Sibertswold grave 98, are to be placed some time in the seventh century too. Neither of the Sarre examples is now clearly identifiable, but either might correspond to the fragments in Maidstone museum: (maid regs.870, 889 and (3). Probably other examples from the later east Kent cemeteries were excavated by Faussett which were not clearly defined by his often ambiguous terminology.

Group L2 (fig.83(4-5), is less well defined, and relatively rare. Basically similar in form to the earlier sub-variant of group L1, but much shorter and more stoutly made; these have short barbs notched out of the base of a flattish blade, lentoid in cross section, on a solid shank of moderate length, and a short cleft socket. Those from Bifrons (maid 620)(fig.83(4), and rather

stouter from Kingston (king 378) (fig.83(5), measure 24.3 and 35.8 cms. respectively, while apparently fragmentary pieces from Blockley grave 3, and Beddington (guild rb. 1012(4), measure only 13 and 15.0 cms. respectively. A singular example from Plumpton Plain near Lewes (bm 53 4-12 138)ascribed to the Anglo-Saxon period by museum registers, but not certainly from such a context, is in a very good state of preservation; with delicately made barbs welded onto the end of a square rod shank, without socket or moulded tang, but merely stopped off; and with a jumped up or bolstered bulge some 6 cms. from the end to form a stop with the apparent intention of preventing the wooden shaft from splitting on impact. Tanged darts are common in eastern Scandinavia in the fifth century,[1] and are found occasionally in western Europe, as at Charnay,[2] or surviving into the beginning of the seventh century from grave 92 at Köln-Mungersdorf.[3]

No insular example from this group is usefully dated. The piece from Bifrons is not apparently ascribable to any particular grave, and is probably merely to be placed some time in the sixth century. A much smaller piece, perhaps an arrow-head, was found in a grave at Broad Town, with a

1. Hackman A. (1905) p.270.
2. St. Germain-en-Laye Mus. regs.34683.
3. Fremersdorf F. (1955) taf.17(92:10).

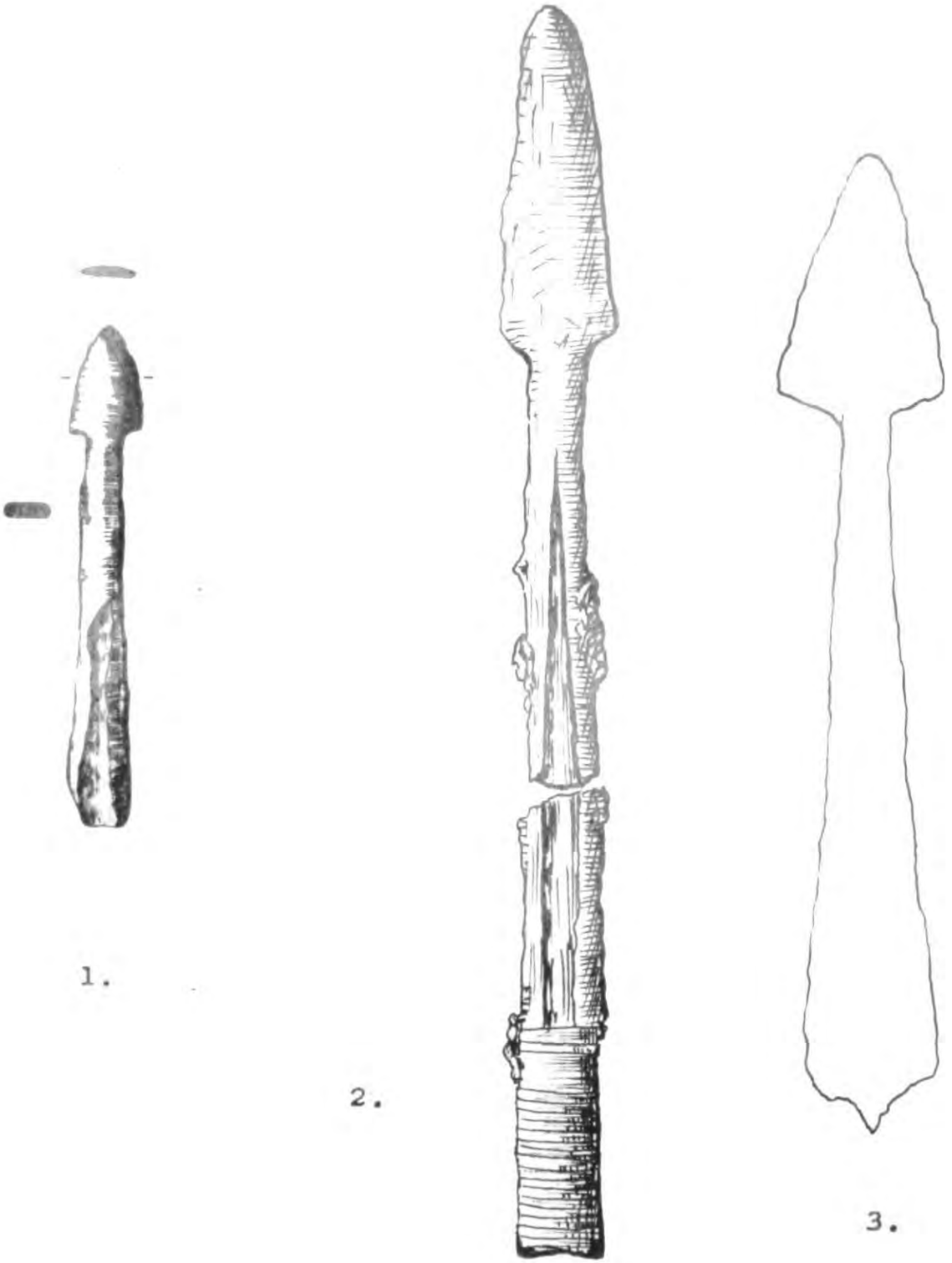

Fig.84. Types of Group L3.

(1) Driffield II (york 415 47).
(2) Finglesham grave G3.
(3) North Luffenham grave 2.

fragment of white bottle glass rim; but this is not mentioned by Harden, and it is not likely that it could be at all closely dated if located.[1]

Group L3 (fig.84), is made up of essentially similar blades, rather smaller and even stouter in proportion, and scarcely more numerous. Having a small blade, triangular in profile, rounded towards the tip, and with the lower edges usually horizontal from a stout junction, this group might be placed conveniently with the barbed series, although the example from Finglesham grave G3 (fig. 84(2), has the lower angle more obliquely reminiscent of the C4 group. A relatively lengthy stout junction piece, of a rounded flat tetragonal section at Driffield (fig.84(1), is usually finished in a cleft socket, bound yet more firmly with wire at Finglesham. The Driffield and Finglesham pieces measure respectively 14.1 and 35.0 cms. in length; and most vary between these extremes in size. One small unassociated example from Colchester (colch J.9) with a closed, but not welded, socket, and a rather elongated blade, might well represent a form of Roman ballista head. A much larger example, with a large welded socket and

1. Germanic arrows seem frequently to have been barbed, as from graves 31 and 37 at Köln-Mungersdorf: (Fremersdorf F.) (1955) taf. 7(31.4), 8(37.12); graves 37, 87 102 etc. at Bulach: (Werner J. (1953) taf.xxxviii, Bourogne (Scheurer F. and Lablotier A. (1914), pp.65, 91, pl.III(e) XXXIV(c). And cf. the example from Rübenach gr.387 (Bonn Mus. Unregs)

stoutly midribbed blade, with no provenance, (bm(18), is ascribed by Museum registers to Anglo-Saxon times, but is hardly practicable as a spear-head, and is also probably to be referred to the Roman period, as some sort of machine missile.

This group is made up of only four pieces; that from grave 2 at Luffenham found with a bronze-bound bucket which can probably be placed some time in the sixth century; and with those from Driffield (york 415 47) and Finglesham grave G3, probably to be placed respectively within the first and second half of the same century. A small group and with no continental antecedent or contemporary counterpart, it seems likely that this represents a minor insular sub-variant of no large significance.

No kind of continental barbed dart seems to have survived the middle of the seventh century, and it seems likely that the Sutton Hoo deposition marks the end of general usage in this country too. Wilson's supposition, apparently on the grounds of manuscript representation alone, that the introduction of barbs must be ascribed to a relatively late date,[1] is inadequate. In manuscripts like the Psalter Harley MS. 603, just as in the Bayeaux Tapestry, an equal number of blades are depicted with two barb-like downward strokes, as those more obviously foliiform,

1. Wilson D.M. (1960) p.118.

while in such documents, regularly angular blades are never found. This is hardly congruent with material evidence, however, which presents more or less equal numbers of foliiform and angular spears during this late period, but with no insular barbed example obviously late. A priori, it seems likely, therefore, that what appear to be barbed manuscript forms, are in fact the OE. draughtsman's conventional representation of wellknown angular series, with the lower angle of the blade omitted - a practice certainly acceptable on paleographical grounds. In addition, so many of these "barbed" spears are shown equipped with lugs, and even in the Ælfric Pentateuch of about 1000 A.D., both cross-pieces and balustering,[1] which could not possibly have existed in practice. Neither is there any reference to such barbed spears in Old English literature, when this sort of detail might well have appealed to the Anglo-Saxon aesthetic as the basis of a fine kenning.

Rather later, barbed darts are certainly mentioned by Theophilus Rugerus and the Egilssaga Skallagrímsonar, and are found realistically represented in manuscripts of the fourteenth and fifteenth centuries.[2] But it certainly seems very probable on the grounds of philogical evidence implied in the origins of OE. gafeluc,[3] that a similar

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1. BM. MS. Cott. Claudius Biv, reproduced by Hewitt J. (1855) fig.16.
2. See section V, p.549.
3. Ibid. pp.545-6.

kind of light barbed dart, perhaps flighted with feathers, was introduced from Celtic sources some time during the tenth century. Petersen recognised the sudden emergence of a small and curious group of barbed spears in Norway in the later ninth and earlier tenth century,[1] which represent an entirely distinct tradition from the long shanked seventh century form. These are short, tanged, and with wide barbs "set out" rather than welded on separately. These limited examples might well have been borrowed or adopted during Norse settlement of Ireland, like the ON. loan of the word gaflak,[2] but no examples are known as yet from this country, and apart from the implications of gafeluc, there is no real evidence that the form was employed in more than limited numbers in later Anglo-Saxon England. The lance of the Gokstad rider roundel-mounts (fig.113 (3) dated to about 900 A.D. and which Arbman considers to have been copied closely from an English original,[3] is certainly represented with a barbed head, but the manner in which it is shown managed from horseback is identical with that of the heavy Breedon contus,[4] and it seems likely therefore that the barbed head in this case is no more than a convention. There is certainly no evidence that the sort of usage described by Agathias was continued into the

1. Petersen J. (1919), type L, pp.33-4, figs.23-4.
2. See section V, p. 545 f.
3. Arbman H. (1961) p.128, fig.33.
4. See section VI, p. 628.

Fig.85. Geographical distribution
of group L1: ●
and group L3: o

later period, and although javelins seem ubiquitous in literature throughout the tenth and eleventh centuries, and beyond, the sort of specialised, long-shanked forward thrust movement, prescribed by the form of, for instance, group L1, seems generally to have been in abeyance by the end of the seventh century.[1]

The geographical distribution of group L1, (fig.85), is clearly to be divided into two parts: the two early derivative examples from the line of the Wall in the far north, and the later Frankish influenced group, confined to the south-east - largely east Kent and the line of the Thames. The small numbers of group L2, seem to present no significant pattern, with single pieces dotted between Worcestershire and Sussex; but the four examples that comprise group L3, are perhaps interestingly scattered up the eastern part of the island from Finglesham to Driffield, (fig.85).

In summary, the "pagan" series of spearheads as a whole present a remarkably consistent and rational pattern. With economic disturbance and technical unsettlement resulting from the radical beginnings of the folkwanderings, the long line of established spear-forms that are met with throughout prehistoric times into the later Roman Iron Age, together with many of the traditional features illustrated, for instance, at Nydam I, like stout midribbing, and carefully welded octagonally facetted sockets, are all displaced.

1. See section VI passim.

The earliest phase of insular settlement was characterised by the partial survival of derivative forms like those of groups A1, A2 or L1, the very earliest of which, like the splendidly inlaid A2 piece from Basingstoke, or that carried by the Richborough warrior, must surely represent personal possessions brought by the earliest settlers themselves from their continental homelands. But thereafter the first centuries of Anglo-Saxon settlement witnessed divergent insular developments which marked a sharp break with the long lines of continental tradition. Certainly by the sixth century a distinct insular series of spearhead forms had emerged which are recognisably "Anglo-Saxon", just as on the continent contemporary groups that are "Frankish", Scandinavian or "Alamannic" are to be distinguished. Such formal differentiation may have been due in part to the general principle of divergence in non-contiguous regions, perhaps paralleled in contemporary Europe by simultaneous dialectal shifts within the common West Germanic group of languages, but also due at least equally to new economic conditions characteristically imposed by frontier expansion.

The smallest of angular-profiled blades of groups B, C, D and F were apparently developed with the first settlements and adopted enthusiastically during the sixth century. These are found widely distributed at the earliest period, but are most densely scattered through the Midlands from the line of the Wash rivers

into the basin of the upper Thames, following the route of Saxon penetration forwarded by E.T. Leeds. A rather wider distribution occurs during the later sixth and seventh century, when these angular profiles achieve rather larger sizes, presumably as a result of more settled conditions and an established economy throughout the Heptarchy, although in Hampshire particularly a curiously small group of variants seems to survive during this time. This apparent popularity of small sized angular blades amongst the Saxons in sixth century England is not paralleled on the continent at this time, and is perhaps to be explained by economic factors peculiar to this particular area of settlement. Just as amongst the East Angles, so along the line of Saxon penetration into what was to become Wessex, workable iron-ore deposits were by no means readily available, and unless they pushed further west onto the Jurassic ridge, the raw material of West Saxon smiths would have formed a relatively expensive object of trade either with Kent and Sussex to the south, or Northumbria to the north. It was only in the very end of the sixth century and the seventh that the rich ores of Dean became available to Wessex;[1] a fact which no doubt accounts at least partly for the

1. Economic factors of iron production at this time are dealt with more fully in section IV, pp. 339-46.

greatly increased size of blades in general throughout the south at this time. The whole development of these angular blades is paralleled by that of the smallest of the foliiform series I and J. These profiles are clearly derivative from pre-migration continental forms, but actual examples seem to be much smaller than any found there contemporaneously. Sharing a "Common Germanic" profile, these groups are naturally rather more widespread in their sixth century insular distribution, finding a place, for instance, in the earliest phase of Kentish settlement, and apparently more commonly found than angular forms in "Anglian" areas. Similarly, these smallest pieces are mostly replaced in the latest sixth and seventh centuries by forms larger in size, which survive into the beginning of the eighth century, as on the continent.

The south-east, and Kent in particular, as made clear from studies of jewellery, glass and other remains, occupied an especially prosperous place in early Anglo-Saxon England. While exhibiting during the earliest 'mixed' phase of settlement features in common with the whole of the eastern seaboard, with the later sixth and seventh centuries distinctly superior culture patterns are relected by the spear index, with a taste for larger more extravagant angular-profiled forms, like those of groups B3, 4 and 5, E1 or F5. Even during earlier times "Common Anglo-Saxon" forms found in Kent were often atypically bulky, like pieces

from groups J3 and F5 at Bifrons, or group I2 at Howletts. This tendency towards large size may possibly be accounted for by the ready availability of local ores in Kent, as in Northumbria where such evidence as there is indicates a similar tendency.[1] But the evidence for a flourishing Wealden industry at this time is minimal,[2] and it is perhaps more likely that this extravagant taste was engendered by the affluence of an entrepôt kingdom. Certainly the catholic tastes of the south-east and Kent in particular, seem likely to have been supported by trade with rich iron owning regions to the far west and north during especially the seventh century. The absence of economical early West Saxon G, H and K forms in Kent would be accounted for by the fact that trade in iron was hardly practicable with Saxon regions until the acquisition of the rich ores of Dean in the late sixth century.

At the same time long-shanked forward thrusting spears, of groups C 3 and 4 and J3-4, like the related group L1, are similarly characteristic of the south-east. It is of course possible that this represents a development independent of contemporary continental series,[3] but it

1. Typified, for instance, by the extravagant F5 piece from Driffield.
2. See generally section IV pp.339-40 for the economic factors of iron-production.
3. For the general principle of cultural similarities in non-contiguous regions, see: White L.A. (1957) "Evolution and Diffusion"; Antiquity XXXI, pp.214-218.

seems more likely that regions which we know to have been considerably influenced by Frankish cultural elements at this time, will have adopted this more sophisticated sort of spear-head simultaneously, perhaps under the same conditions of warfare appertaining elsewhere in north-west Europe.

Naturally enough, as the sequence of distribution maps has shown, the degree of localisation varies in intensity at different times, and in different sectors of the settled area. Lengthier foliiform groups, I 4-6, finding favour during the sixth and seventh centuries, while markedly absent from any part of East Anglia, are otherwise apparently widely distributed over the south and Midlands. Peculiarly "Saxon", and perhaps even "West Saxon", on the other hand, is the curious development of the variously modified blades of series G, H and K, with major concentrations in the valley of the middle and Upper Thames, where K3 presents the most startling picture, the small numbers of which seem entirely confined to the downland immediately south of the middle Thames. It seems clear that while some forms are found common to a wide area and a lengthy period of time, others become dominant within a limited region at a particular stage in the development of the area, and might thus be conveniently ascribed regional <u>quasi</u> tribal distinctions. Just as it is more accurate, however, to classify the

material into groups than into rigid "types", so these groups abide by no strict chronological or geographical limitation very often, and have more the nature of foci, from which nevertheless the general pattern described seems to emerge.

Later Anglo-Saxon Forms.

Classification of the later series presents many more considerable difficulties. It is unfortunate that the end of pagan burial practices seems to have largely coincided with the adoption of new infantry tactics which resulted in the confirmation of the general shift towards larger weapons that had already been initiated in the south east.[1] The division into series and groups of material that on various grounds is just not classifiable in the earlier period, must remain essentially formal, with due consideration of profile and proportions, together with such later structural features as balustering in addition. At the same time, with the confinement of many of the earlier groups to the pagan period, and the obvious decay of others during the later part of the seventh century, the pattern of series presented by the eighth to eleventh centuries is much more restricted. Only a small number of variants are definable on grounds of profile and proportions alone, and the matter of

1. See section VI, **passim**.

chronology is even less surely based than in the earlier period.

With the abandonment of pagan funerary customs only a very limited number of later Anglo-Saxon spears are usefully associated, and with little external evidence for dating, therefore, greater reliance must be placed on frequently less convincing internal evidence such as structure or ornament. Parallels can be usefully drawn from manuscript illuminations from the late seventh century to the end of the Anglo-Saxon period and beyond, although firm conclusions based on these alone cannot be accepted uncritically. The extravagantly floriated heads devised, for instance, by the illustrator of the Tenison Prudentius,[1] cannot be considered in any sense realistic, and to reconstruct them like Strutt[2] as actual physical types is clearly erroneous. But both before and after the period of such spirited interpretations of the Canterbury School, more reliably realistic drawings are found which are potentially of greater use.

In addition, with the increasing commerical and cultural contact of England with the continent, the comparison of insular forms with dated groups from those parts of Europe where pagan funerary customs persisted

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1. BM.MS. Addit. 24199; for instance, fols. 2v or 3.
2. Strutt J. (1842) Dress and Habits of the People of England, I, pl.xiii.

rather longer than in England, is of as great or greater value than before. Few uncorroded examples remain from Viking burials in England, but clearly the majority of Scandinavian imports of this time will have corresponded to Petersen's various types, like those from the largely ninth century Kilmainham-Islandbridge cemetery, which must represent the most important series of Norse weapons outside of Scandinavia.[1] Some late examples, like that from Ferrybridge corresponding to Petersen's type A, or of his types C and F from Brentford (lm 0.2087, and 1780), can be convincingly separated off as the work of foreign weapon-smiths, or at least as the work of an alien smith in the train of an established here.[2] But with an increasingly mobile pattern of warfare, together with the interchange of mercenary troops, as well as the normal diffusive cultural processes,[3] it is inconceivable that the military equipment of the most effective armies of Europe should have had no influence on that of the Old

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1. Coffey G. and Armstrong E.C.R. (1910) Scandinavian objects found at Island-Bridge and Kilmainham; Pr.R.Irish Ac. XXVIII (C), pp.107-22.
2. One particularly convincing import with a curiously twisted blade, from Little Boyne River (Shetelig H. (1940) III, p.86), seems to have had its origins in the Roman Iron Age of Finland (Acta Arch. XXV, p.159; and cf. Gjessing G. (1934) pl.vi).
3. Ingulphus, for instance, mentions sub anno 974-5, the presentation to Croyland by Turketel, of two silver basins, remarkable for their workmanship and size, and most beautifully adorned with armed soldiers; which had been given him by Henry emperor of Germany.

English fyrd. The exact degree and direction of influence at this time, however, remains as imponderable as that of Celtic influence during the earlier Dark Ages. It is possible, as Fell suggests with regard to the Kentmere spear-head, that Anglo-Saxon smiths were prepared to make slavish copies of Viking models,[1] but in view of the considerable insularity of taste exhibited by the earlier series, it seems more likely that the essentially sophisticated later Old English weapon-smith chose his repertoire with discretion, and characteristically conservative of technique, preserved, for instance, the singularly English feature of cleft socketing.

It is theoretically possible, supposing a regular progress in techniques of smelting and smithing, to place an approximate date on a spearhead unremarkable in any way save a reasonable degree of preservation, by the employment of chemical and micrographical analyses. But as we shall see, a large range of technical controls would be required before this was practicable.[2]

With the great majority of spear-heads of the later period coming from the south-east of the country, and a remarkable proportion of these emanating from the bed of

1. Fell C. (1957) A Viking Spearhead from Kentmere; CWAA. LVI, pp.67-9.
2. See section IV, pp.334 ff.

the Thames, distribution maps, apart from repetition of this predominance, seem to show no significant groupings. Certainly there is none of the regional differentiation to be discerned, which was characteristic of the earlier more fragmented condition of pagan production.

Series M, is made up of the three recognisably late foliiform groups; plain blades for the most part, which seem to originate with the latest examples of the pagan series I and J. Such blades are found repeatedly represented in manuscript drawings, or the Bayeux Tapestry, for instance, invariably in a lengthy slender form, but this is no doubt due in the majority of instances, to merely conventionalised depiction. One or two more three-dimensionally figured examples, might be accepted as realistic enough,[1] but the broad La Tène type blades carried by two warriors within the capital of the folio 31 of the eighth century Psalter, BM MS. Cotton Vespasian A1,[2] cannot be seen to have actually survived the Migration period, except in one or two rare instances.[3]

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1. For instance, as carried by the David of the eighth century Durham Cassiodorus, fol. 172v, (Rickert M. (1954) pl.10).
2. Reproduced by Gilson J.P. (1914) Schools of Illumination, I, pl.7. And cf. that piercing the unicorn of a late twelfth century Bestiary: MS. Ashmole 1511, fol.14v.
3. See this section p.107.

Fig.87. Types of Group M1.

(1) Brentford (1m 0.1778).
(2) Brentford (1m 0.2088).
(3) Brentford (1m 0.2121).
(4) Wandsworth (1m A13866).

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Group M1, (fig.87) form lengthy and rather slender foliiform blades, occasionally lentoid, but more frequently lozengiform in cross-section, the socket taking up a quarter or somewhat less of the whole, which varies between 40 and 65 cms. for the most part and measuring up to 68.5 cms. at Stoke Ferry. Larger pieces, usually with broader flatter blades, like that from the Thames at Brentford (lm 0.1778)(fig.87(1), invariably have tightly closed or welded tubular sockets. Smaller more delicately made pieces, like that from Wallingford (Shull(1), have narrower more needle-like blades, and most frequently short cleft sockets. In all of the group, however, the blade is characterised by a smooth outline, with little flaring to the junction, but a gentle curve to the tip, with the broadest part of the blade near the bottom. A single example from Wandsworth (lm A13866)(fig.87(4), features the "beaked" junction moulding which Wheeler considered definitive of a particular class of late spear-heads,[1] but which in fact seems rather to be confined to a minimal number of pieces straddling a range of groups otherwise definable.

No pattern-welded examples have been recognised from this group, and there are apparently no other significantly dateable structural features. In general profile, however, this group, and especially the smaller split socketed pieces,

1. Wheeler REM. (1935) p.171.

most nearly conforms to the earlier group 15, a largely insular development, although sporadically paralleled on the continent. This group had certainly survived into the eighth century in Scandinavia,[2] and in insular contexts into the seventh century, although no obviously late examples are known, and it must remain a matter of conjecture, in view of this apparent typological hiatus, whether any formal continuity may have existed between earlier and later groups. For the larger examples no clear "pagan" antecedent exists, but at least one example, from Leasingham, is in a sufficiently good state of preservation for the socket to be discerned as originally octagonal in section, a feature more common in Scandinavia than in England at this, or any, time. This is not a type recognised by Petersen, however, and although an interesting parallel from Kokemäki, (Finland) may be dated by the pattern of silver inlaid decoration on its socket to some time in the eleventh century,[2] the major Scandinavian counterpart to this lengthy foliiform group, more nearly approaches the profile of the earlier insular group I6, taking the form of the most slender of foliiform blades, with no break at the point of the junction at all, but a simply curved line from socket mouth to tip. This is Petersen's type E,[3] which occasionally with the socket

1. Warrior graves ascribed to this date occur from: Bjølverud and Bjerkely (Opland)(Oslo Mus. unregs. and C.26524).
2. Kivikoski E. (1947) vol.II,p.17, taf.103(803).
3. Petersen J. (1919) pp.26-8, fig.13.

decorated with vertical rows of fullers, and once from Auster (Gotland), with the cornices inlaid with silver-niello plates of interlace,[1] seems to begin at the end of the eighth century, and survive to the end of the ninth,[2] when it is replaced by his many-rivetted type I.[3] Such lengthy foliiform blades do not seem to outlast the tenth century, however, during which examples both with and without the row of projecting bronze rivets, are frequently characterised by a rich socket inlay of herringbone twisted copper and silver wires and the occasional band of squared interlace picked out of silver in niello.[4] Although found occasionally in eastern parts of Scandinavia,[5] this form of decoration appears to be predominantly western, or Norse. The first half of the tenth century, however, to which Petersen confines his type I, saw a period of military success for the southern English, with the aggressive nexus of Aethelflaed and Edward, maintaining its impetus under their successor Aethelstan. This was the period of Brunnanburh (A.D.937) and it would be convenient

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1. Stockholm Museum. 2309. with straight-guarded sword.
2. The best known examples are Swedish; from Tuna grave IV, Arne T.J. (1934) Das Bootgräberfeld von Tuna in Alsike, p.29, taf viii(2); Vendel grave VIII, Stolpe H. and Arne T.J. (1912), p.32, pl.xxii(3); or Birka graves 542, 536, 560, etc., Arbman H. (1943) Birka I: Die Gräber, pp.146, 167, 180, taf.8(1-3).
3. Petersen J. (1919) p.31, ifg.20.
4. See section IV, pp.432-5, fig.107(3).
5. Eg. Birka graves 708, 581; Arbman H. (1943) pp.189, 242-3, taf.9(3-4).

to think of the single piece decorated in this way, dredged from the bed of the Thames at London (bm 93 7-15 2), as war booty; but, of course, with the greater degree of intercourse between for instance, the five Boroughs, and the English at this time, this spear might equally as well have been the property of a trading Dane.[1] The undecorated example from Kildale, buried with an axe and sword of Petersen's type W/X[2], must probably be seen against the background of the Norse conquest of York during the same period.[3]

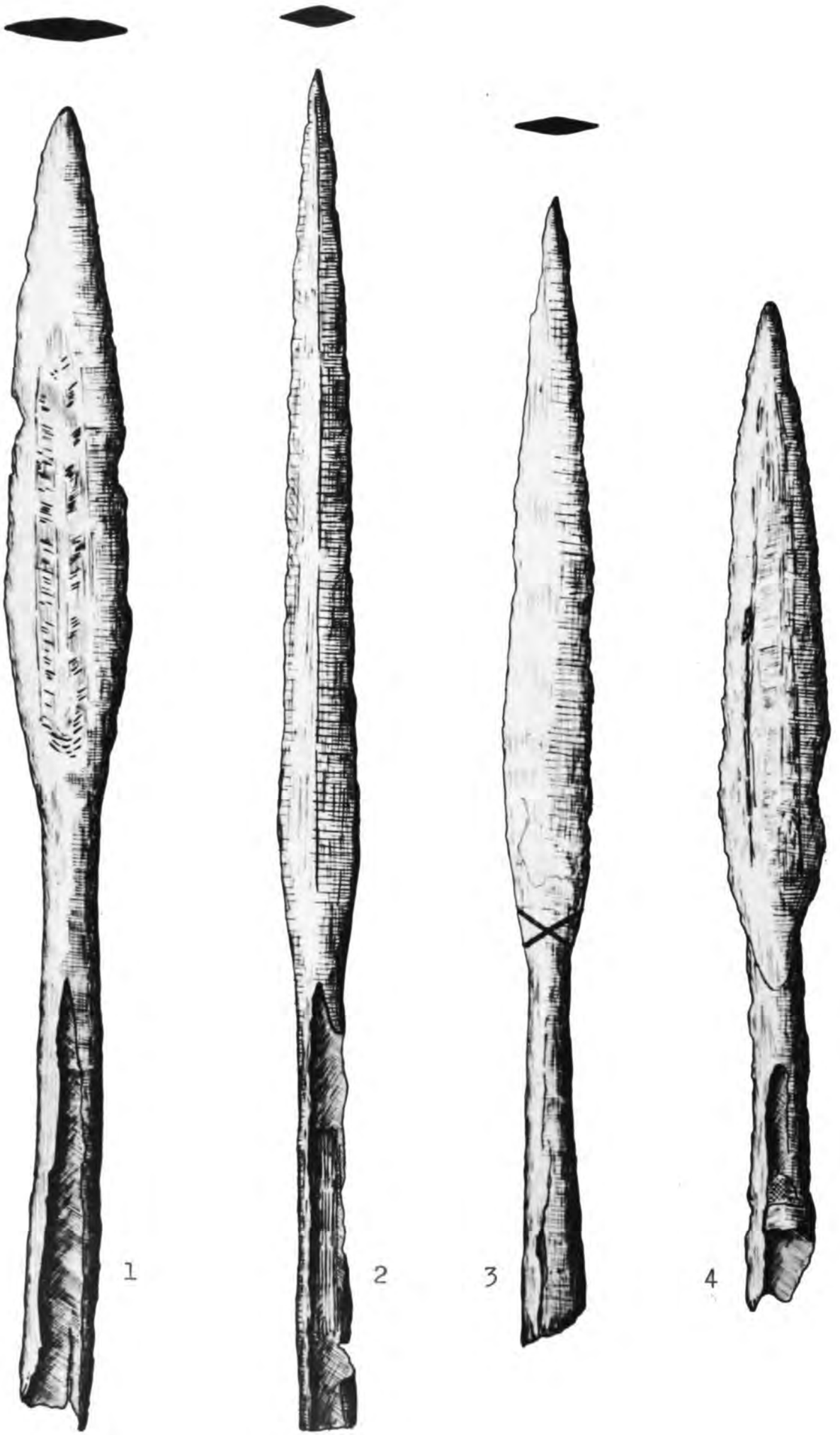
A single example from the Thames at Egham, with a fragmentary but originally closed socket, exhibits in the lower part of the blade. a simple form of inlay, made up of straight lines of twisted silver and copper wire, running parallel to, and diagonally from the sides of the blade; and with simple copper rings at the junction. This sort of inlaying is rare enough in England at this time, but apparently unknown on the Continent or in Scandinavia, and likely therefore to be of insular origin.[4]

This sort of spear-head is not clearly distinguished in any manuscript representation, and although foliiform blades are commonly figured in the Bayeux Tapestry none are

1. Stenton F. (1947) Anglo-Saxon England. pp.318, 354.
2. Petersen J. (1919) pp.156-67, figs.123-7.
3. Stenton F. (1947) p.329 ff.
4. See section IV pp. 439-40.

Fig.88. Types of Group M2.

(1) Bexley.
(2) Brentford (1m 0.2049).
(3) Wargrave.
(4).Sunningbury Weir.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really as lengthy as these. It is probable, however, that this group derives during the course of the eighth century from later pagan period types of the I series; and increasing in size, survives at least until the middle of the tenth century. That this group is not found during the last century of the Old English period, however, is merely based on an argument ex silensio from insular material, supported by suppositions from Continental development. Such a transference should be valid enough, however, in view of the principle that conditions of warfare bear a direct relation to the equipment in use, and the generally homogenous mode of battle throughout Europe at this time.[1]

Save for one or two examples from Lincolnshire and Yorkshire, the bulk of this group come from the bed of the Thames between Reading and London - a curious distribution, the pattern of which recurs persistently in the later series of spear-heads, and the significance of which must probably remain a matter of speculation.[2]

Group M2 (fig.88), is made up of a smallish number of foliiform blades, much as before, with due variation in bulk and breadth, but here proportions are distinct from the former group, and the socket takes up something more than a third of the whole. Rather shorter than

1. See section VI passim.
2. See section VII, pp.696-7.

the former group as a whole, examples vary between 28 and 44 cms., with a single unprovenanced piece (bm tr.186) reaching 55.4 cms. in length. Sockets appear to be cleft or closed with no particularly distinct corollary of form, although cleft examples are more commonly found.

In general profile, this group corresponds with that of the "pagan" group I4, which had persisted strongly at least until the time of the Shudy Camps cemetery,[1] and a continuity of form might well be assumed here. Or with a gradual increase in size, these spears might well have emanated from group I2, which also occurs in very late graves.[2] Counterparts to these two earlier groups had clearly existed on the continent of Europe during the seventh century, and even into the beginning of the eighth, and although Petersen recognises no later group of this kind from Scandinavia, two examples from graves in the Upper Palatinate at Burglengenfeld and Krachenhausen, are probably to be ascribed to some date in the ninth century.[3] Of undoubtedly insular origin, however, is the cleft-socketed and simply pattern-welded example from the bed of the Cray at Bexley (fig.88(1). A closed socketed piece from the Thames at Wargrave (read 190 58), exhibits the same sort of simple inlay as that on the example of the former group from Egham, with a simple

1. See this section p. 198.
2. See this section p. 192-4.
3. Stroh A. (1954) Die Reihengräber der Karolingisch-ottonischen in der Oberpfalz. pp.12, 23, taf.3(9), 12(g).

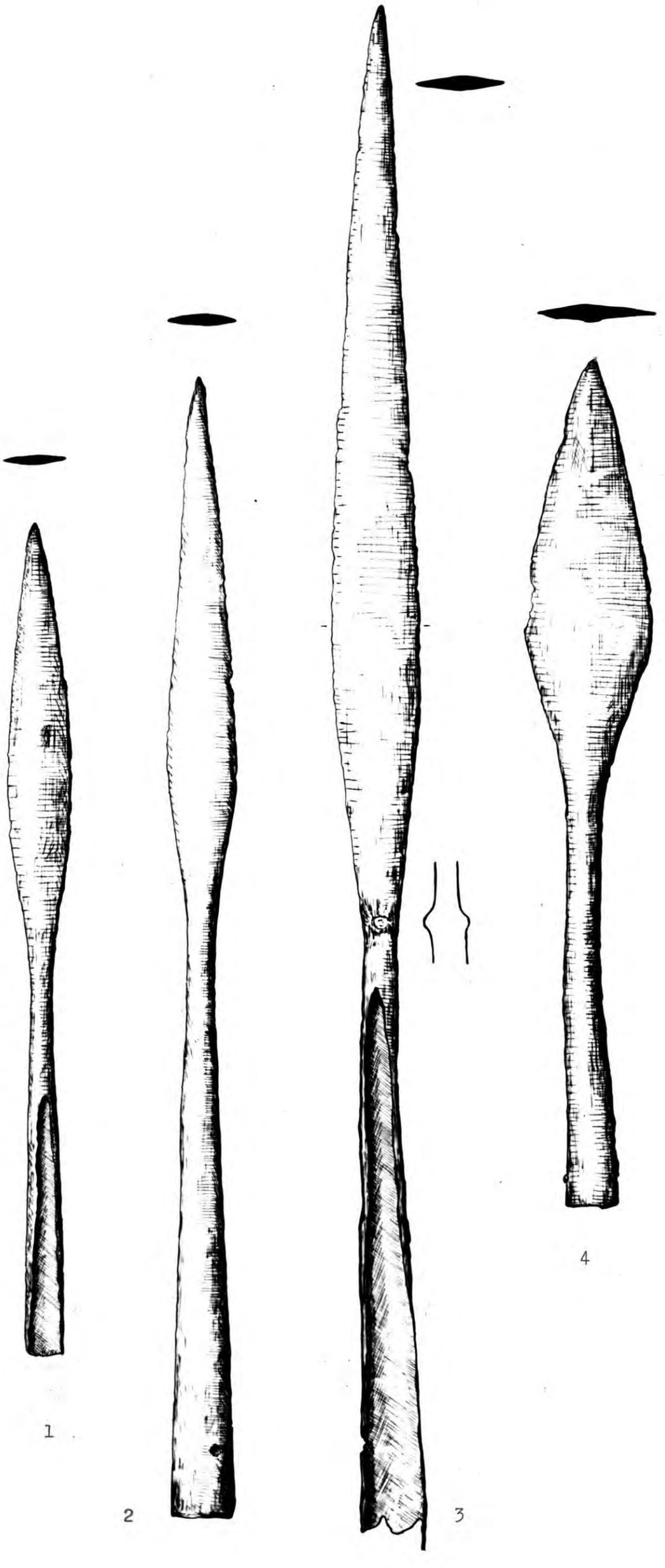
diagonal cross of copper wire either side of the lowest part of the blade. A third example, rather small and atypical, is said to have been dug up in the City of London (lm 29 94/18) together with a scramaseax of probably tenth century type,[1] but this should not necessarily be regarded as a firm association. Similarly, a corroded spear-head, but one probably to be included with this group, was dredged together with the well known "Old London Bridge" hoard of weapons; which Wheeler ascribes, on the grounds of silver ornament on one axe head of a nascent Ringerike style, and on a spear-socket of a degenerate Jellinge style, to about the year 1000 A.D., associating it with the Olaf-Sweyn campaigns at about this time.[2] But this sort of association must remain very doubtful from a part of the river which saw a considerable amount of fighting throughout the last centuries of Anglo-Saxon England.

It is this sort of weapon which seems to figure repeatedly in the hands of warriors represented in manuscripts of the tenth and eleventh centuries, but with the high degree of conventionalisation at this time, no firm conclusions are to be drawn. More realistically figured spear-heads held by Longinus and a warrior of Pilate in a manuscript from Fulda dated to about 975 A.D.,[3] might

1. Wheeler R.E.M. (1935) p.181.
2. Wheeler R.E.M. (1927) pp.13, 18 ff.
3. Göttingen Univ. Bibliothek; Cod.Theol. fol.231; reproduced by Goldschmitt A. (1928) Die Deutches Buchmalerei, II. pl.106.

Fig.89. Types of Group M4.

(1) Brentford (lm 0.2039).
(2) Brentford (lm 0.2048).
(3) Brentford (lm 0.2037).
(4) London (bm 56 7-1 1377).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well represent this group: a rather stout weapon, with a marked central panel, perhaps merely at the whim of the illuminator, or more likely the conscious representation of a composite blade like that from the Thames at Brentford (lm).2038), or a pattern-welded panel, like that from Bexley.

With no strictly comparable Scandinavian or continental counterpart, it is possible to ascribe this group only to the most approximate of chronological limits. Obviously originating with the latest of the pagan I series in the course of the eighth century, it seems likely to have survived into the secondhalf of the century at least, but as with the previous group, there is no evidence for its having survived until the time of the conquest. Most of the group, as before, come from the Surrey and Berkshire reaches of the Thames, but no example seems to be known north of the river.

Group M4,[1] (fig.89), is made up of another group of foliiform spear-heads, slender and lentoid in cross-section for the most part, with solid junction pieces and lengthy sockets. They are smoothly made, with a gentle line running from socket to tip, save for the occasional rather broader bladed example, like that from the Thames at London (bm 56 7-1 137).(fig.89(4). The proportions of blade to

1. The coding M3, has not been used.

socket lengths vary considerably within the group, but there are insufficient numbers to warrant significant subdivision, as with the pagan J3 group, with which M4 so nearly corresponds. Lengths vary between 38 and 52 cms. for the most part, although one particularly lengthy piece from the Thames at Brentford (gunn 0.2037)(fig.89(3) with "beaked" junction-moulding, reaches to the length of the greatest of J3 pieces, at over 70 cms. As before, there seems to be no direct relation between a particular form , or size, and the distinction of a closed or welded socket, but as with the previous group, open cleft sockets predominate.

Apart from this single "beaked" element, which might well prove to be an earlyish feature,[1] there is no example in which structural details, like the existence of pattern-welding, might indicate a particular period of use. The form is not apparently found represented in illuminated manuscripts, although the length of the socket, or the break with the shaft are rarely indicated in any case. The group is not recognised by Petersen, and although forms corresponding with the insular group J3, were commonly found in Frankish regions and the south of Germany during the seventh century, no example from a continental contexts seems to have been ascribed to a date any later than this. It seems likely that this group, therefore, represents a mere continuation of the

1. See section IV, p.395.

earlier group J3, into the eighth century, but with no indication whatsoever, of an upward limiting date. There are few enough pieces, however, and perhaps the form did not even survive into the ninth century. The distribution of this group, like the former, is entirely southern.

Series O is made up of three broad groups of angular blades, each of which is rather more numerous than those of the previous foliiform series M, with as a result more examples which might be used to indicate an approximate dating. The major divisions of the series, like those of the earlier pagan series B, are based on profile and proportion. A number of sub-variants occur in one or two of the groups, defined by more detailed consideration of form, but as before, further subdivision becomes insignificant in view of the present impossibility of drawing firm chronological or geographical conclusions from such over sophisticated fragmentation. Angular blades appear equally with foliiform blades in the manuscript representation of the tenth and eleventh centuries, and similarly, arguments of mere conventionality might be levelled against either.[1]

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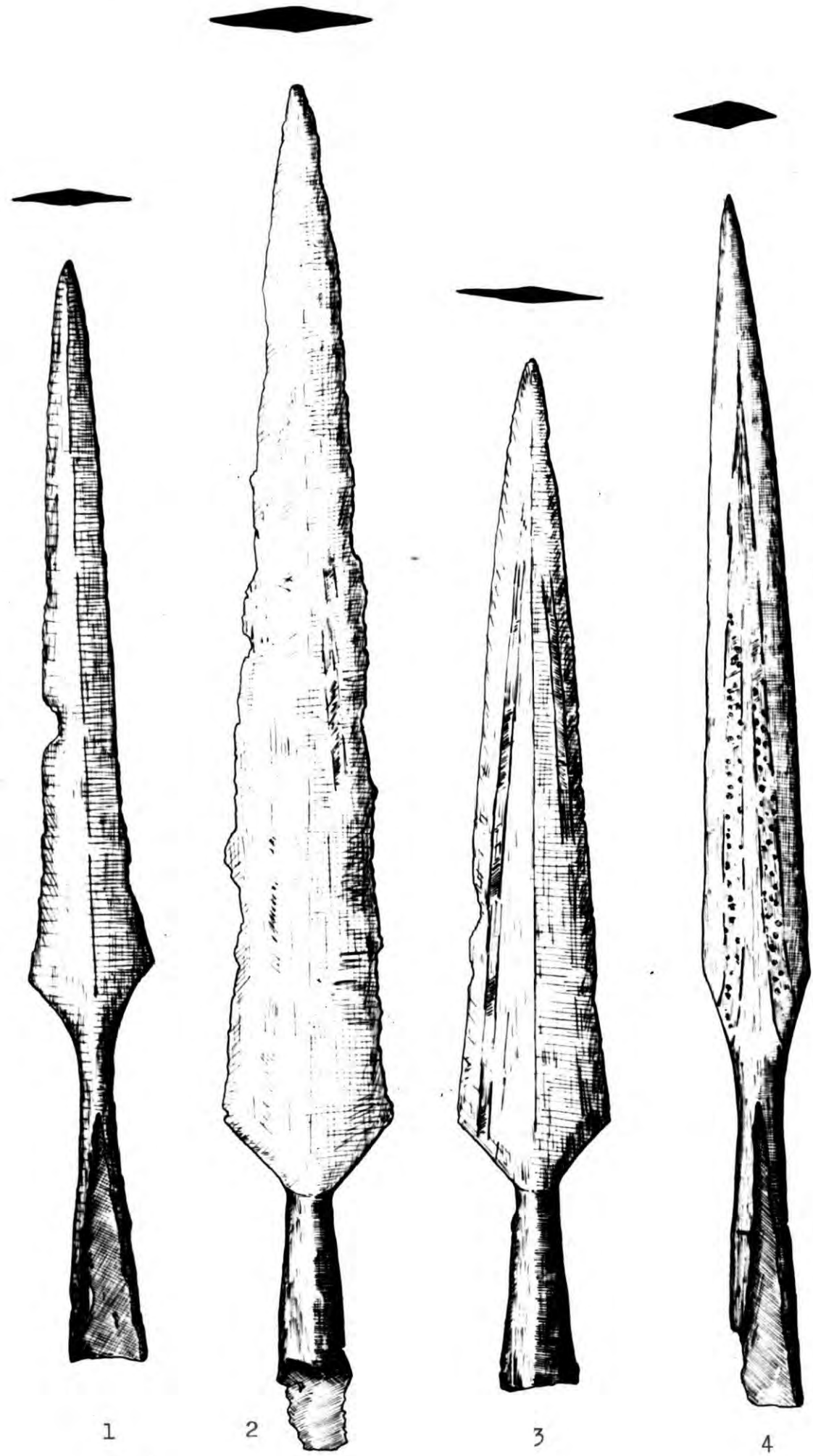
1. See section III, p.262.

Fig.90. Types of Group 01.

(1) Brentford (lm A13692).
(2) Hampton Court (lm A27234).
(3) Walthamstow (lm C737).
(4) Barrington.



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Group O1 (fig.90), is composed of lengthy and, for the most part, stoutly made angular blades on short sockets, which represent about a quarter the length of the whole, with the angle of the blade basally placed, and a flaring line sharply demarcating the junction. Lengths vary between 30 and 60 cms. with the greater number rather longer within this range. It is convenient to arrange the large numbers of this group into three sub-variant forms for the purposes of formal discussion without warranting separate classification on other grounds.

The "normal" form is apparently to be regarded as a continuation of the earlier groups B3-4 as at Ramsgate or Sarre: broad-based angular blades, lozengiform in cross-section, with a stout low angle from a short and sturdy socket, most often closed. The blades of this sort frequently seem to be pattern-welded, like those from the Thames at Hampton Court (1m A27234) or at Wandsworth (1mC737)(fig.90(2-3). Others, like another from the Thames (bm 38 1-5 1) have simple homogeneous blades. Others, with the same basic form, but more lightly made, and usually with delicate cleft sockets, exhibit a more acute angle with a slight strickening in the blade above to form a rather narrower tip than usual, as in that from the Thames at Brentford (1m A13692)(fig.90(1). Another much larger piece from Hinchingbroke (camb 48 1671), has only a fragmentary socket, but clear traces of a gilt

overlay at the junction. No example, however, seems to have a particularly complex structure.

A third and rather larger variant is narrower overall and with somewhat longer socket proportions, although otherwise conforming to the basic group profile. The outlines are very similar to some of those of the earlier groups B3-5. By far the greater number have closed welded sockets, like those from the Thames (bm 38 1-5 3) or Wilfholme Crossing (hull(3); and one from the Thames (bm 68 9-4 4) has an hexagonally facetted junction which is perhaps adopted from the more impressive Scandinavian examples congruent with this group, with sumptuous silver inlaid decoration on the socket. A smaller number have the traditional English split socket, like that from the Thames at London (bm 56 7-1 1432), or another from Wheeler's "Old London Bridge group" (lm A23348). At least one example with a closed socket, from Ely (camb 22 702a), and one with an open socket from Barrington (camb Z1389) (fig.90(4), are pattern-welded.

If the first variant is characterised by frequently including panels of pattern-welded ornament, the last perhaps a little less regularly, features decorative inlay.[1] This most often takes the form of silver overlay

1. This kind of decoration is, of course, occasionally found on spears of the former kind, like that from a rider-grave of the earlier eleventh century at Hubbo (Västmanland)(Stockholm Mus. regs.15393).

on the socket, picked out in niello with a close network of interlace, which might perhaps be best described as a developed form of Jellinge style, with a length of stepped pattern round a facetted junction. This style of ornament seems to be confined to this sort of spear-head, and is particularly characteristic of eastern Scandinavia during the later tenth century.[1] Examples from England include one piece again from Wheeler's "Old London Bridge group" (lm A23353), which he dates to about 1000 A.D.,[2] and two others from Loddon and Burradon, in which the decoration is very fragmentary now, but which can clearly be recognised, and may probably be attributed to importation during the period of renewed Viking activity which followed the accession of Æðelred (978 A.D.) and culminated in the enthronement of Cnut, (1016 A.D.). Apart from these, a rather unusual, and yet little known example comes from the Thames at Brentford,[3] (toronto FA23), with a firm midrib, and the socket and lower part of the blade inlaid with silver, brass and copper wires in a scroll design, and faint indications of what are described as silver inlaid birds on the socket (fig.107(1).[4] There seem to no parallels for this, but it is likely to be rather later than earlier in the lengthy period covered by this group.

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1. See section IV, pp.435-7.
2. See this section, p. 262.
3. Inaccurately described by T.D. Kendrick as being from Kew, (1934) Eurasia Sept. Antiqua IX, p.392.
4. Information from Miss A.C. Harle.

Each of seven examples which might be approximately dated by association, are likely to be of Scandinavian origin. Two from northwest Britain, - that from Heskett usefully dated by a sword of Petersen's type O, and axe of his type E, to the first half of the tenth century,[1] and that from the smith's grave at Ballinaby with axes of types A and D, are undoubtedly the result of Norse settlement of the northwestern seabord. Two others were found together at Westly Waterless in a low cylindrical leaden casket, the external panels of which were van-dyked with cast interlace of a debased sort, which might be paralleled from grave covers of the last quarter of the tenth or earlier half of the eleventh century. From London (bm 58 10-19 1) comes an example reportedly found together with a pair of probably twelfth century engraved bowls, and others from Wheeler's familiar "old London Bridge group" (lm A23348 to A23352).

The first of the variants described, must, of course, be compared with Petersen's type G, for which he rejects the possibility of an early origin, restricting it on grounds of association to the tenth century, and most probably the later half of the tenth century, continuing into the eleventh.[3] Subsequent discoveries, however, like

1. Petersen J. (1919) pp.40-2, 126-34.
2. Ibidem, pp.37-40; and the associated woman's grave with congruent tortoise brooches.
3. Petersen J. (1919) p.29, figs.17-18.

that from grave 3 at Tuna (Uppland) which is dateable to the later eighth or earlier ninth century,[1] show this type to have had a much longer life than Petersen supposed and continuing well into the later eleventh and twelfth centuries in Finland.[2] The second of the variants finds no strictly comparable counterpart in Scandinavia or the continent of Europe, but the third must inevitably be compared with Petersen's type K[3]. Of these, many insular finds must surely have been the possession of Viking plunderers or settlers. This type, to which the majority of the sumptuously silver inlaid examples belong, he dates by association to the latest part of the Viking period, that is the later tenth and eleventh centuries.[4] There is no new evidence necessarily to ascribe this group to a date any earlier, but it does seem likely on purely typological grounds, that all of the insular group, so far as they may be separated off from Scandinavian imports, are to be ultimately derived from the latest of the pagan B series.

The most common form that manuscript representation of the spear-head takes is that of the angular outline of

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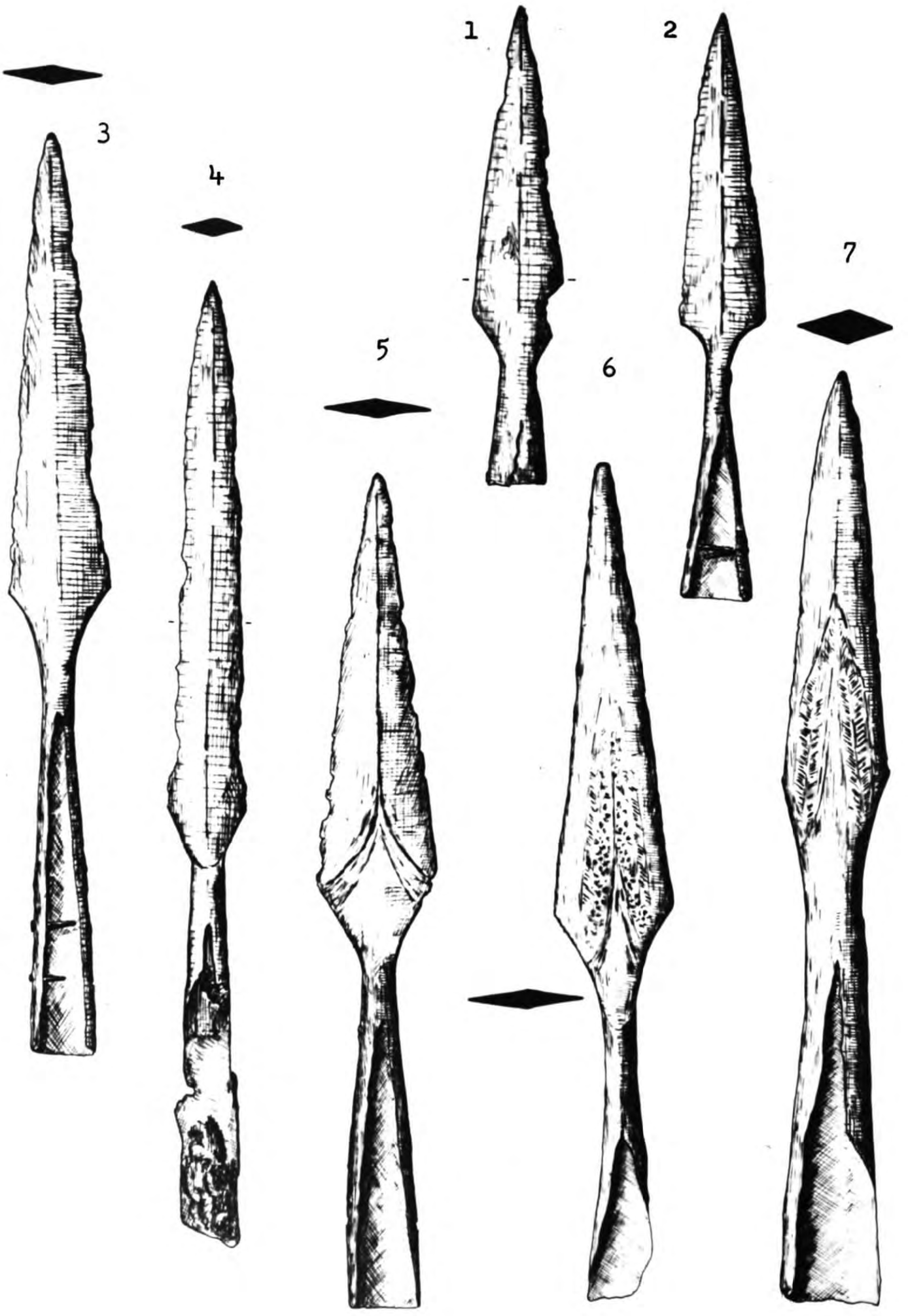
2. For instance, the silver inlaid example from Akaa; Kivikoski E. (1947) p.40, taf.144 (1109).
3. Petersen J. (1919) pp.31-3, figs.21-2.
4. Cf. an example from Birka grave 644, the socket decorated with herringbone inlay, given a terminus post quem by Arabic coins of 920-1 A.D. (Arbman H. (1943) p.222, abb.183(32).
1. Arne T. J. (1934) p.27, taf.vi(13).

Fig.91. Types of Group Ø2.

(1) Brentford (1m 0.2080).
(2) Mortlake (1m A24194).
(3) River Lea.
(4). Brentford (1m 0.2051).
(5) Brentford (1m 0.2072).
(6) East Anglia (camb Z1391).
(7) NP. (camb 34 971).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this group, usually with one or two cross strokes at the socket, or in the upper part of the shaft, if such a distinction is made by the artist. But from the earliest examples, like that in the Book of Kells, dated to the late eighth century (fig.110(3) or that in the Paris Prudentius,[1] of about 800 A.D., the form depicted is much more of a lozenge shape, which does not seem to have existed in fact, in any numbers at least, after some time in the sixth century. The nearest approximation to the spearheads of group 01, is in some of those drawn in a St. Gall manuscript of the first half of the tenth century.[2]

The chronological range of this type, therefore, seems to be wide; originating with the end of the pagan series, and surviving into the earlier Medieval period.[3] The geographical distribution is equally widespread, with no particular concentration in any area.

Group 02 (fig.91), is made up of a large number of angular blades, lozengiform in section as before, with the angle of the blade basally placed, but proportions of socket to blade more nearly equal, with the socket and junction piece representing something under a half and over a third of the whole. Rather more delicately made for the most part than the former group, they

1. Hewitt J. (1870) Medieval arms and armour; Reliquary X, p.115, pl.xiv(4).
2. Goldschmitt A. (1928) I taf.73.
3. See section II, p. 324.

are much smaller, varying between 20 and 30 cms. with the occasional example just a little larger.

The "normal" 02 form is small, with a narrow low-angled blade, on a frequently slender junction and almost invariably cleft socket, like those from the Thames at Mortlake (lm A24194 or A19940)(fig.91(2), or at London Bridge (bm 56 7-1 1439). A few examples are rather more stoutly made, like that from the Thames at Brentford (lm 0.2080)(fig.91(1), where the metal of the socket is not welded but overlapped; or another from London (lm 59 94 26), with a single rivet hole in the back of a corroded, but probably originally closed socket. None of these show particularly complex structures. All are simply made, and in view of the general trend towards larger and more expensively made spears during the later part of the period, the supposition that this sort of spear was probably employed as a missile, seems justified.[1]

A second definable variant, is formally little more than a larger and broader version of the former, although still relatively small overall. Again split sockets are regularly found, often cleft right up to the point of the junction, but a very large proportion appear to have been pattern-welded, like those from Brentford (lm 0.2072) (fig.91(5), Bristol, East Anglia (camb Z1391)(fig.91(6), or two from the Thames at London (bm 56 7-1 1434, and cum.307).

1. See section VI, **passim**.

A rather larger example than normal comes from the Thames at Cookham (bm 68 1-28 2), measuring 37.0 cms. Simply structured pieces, on the other hand, seemingly differing little in general proportions, come from Fordham and Brentford, (lm 0.2119); and from Brentford too, comes one of the rare examples with closed socket (lm 0.2092).

A small number of narrower examples, overlap to some extent with the former group, save for more equal socket-to-blade proportions. That from the River Lea (fig.91(3), and those from the Thames at Putney (bm(4), or Isleworth (lm 0.2070), exhibit the hint of concavity in a narrow blade which associate them with the split-socketed lightly made second 01 variant. Smaller numbers, equally lightly made, with even narrower, almost needle-like blades, as in that from the Thames at Brentford (lm 0.2051)(fig.91(4) might be usefully compared with the third 01 variant. A final single example without exact provenance, but probably from somewhere in the east Midlands, (camb 34 971(2) (fig.91(7), is of particular interest. Clearly of insular origin, it is much more thickly made than is usual in the blades of pattern-welded spears, and with equal proportions between socket and blade, both in breadth as well as length, stoutly constructed overall, with a massive solid junction piece. The whole effect is to produce a blade heavily weighted towards the tip, with every appearance of having been designed for use in a downward direction, perhaps as

an equestrian lance.[1]

The formal mainstream of group 02, might well be considered to have some relation with Petersen's type M, which he confines to the eleventh century as the latest of Viking forms.[2] A useful example is that from a grave at Bäcke (Västergotland) dated by sword and axe forms to the eleventh century,[3] while further east in Sweden and Finland examples are found with silver-plated sockets picked out in Ringerike style ornament with niello.[4] Angular profiles have a much longer history in England, however, originating with the latest of the pagan B. series, and it seems likely therefore that this group has a rather wider chronological range than that of Petersen's type M. The second major variant described seems likely to stem from group B2, or the shorter pieces of B3, which persisted well into the seventh century; but the first shorter variant corresponding with group B1, cannot have such a clear line of continuity, with no B1 example appearing to have survived the sixth century. This therefore would appear to represent an introduction after an hiatus.

There is little to date the range of this group, save

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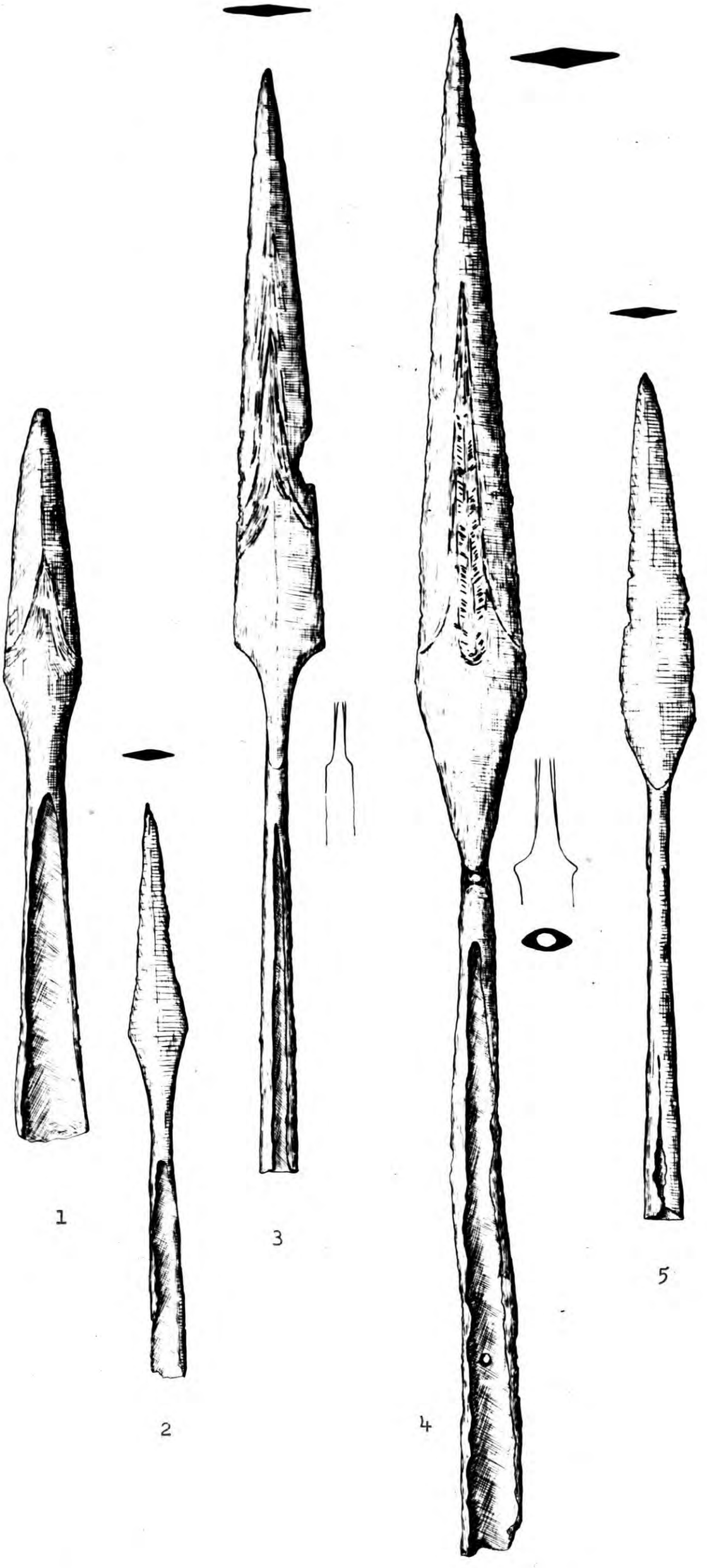
1. See section VI, p.619.
2. Petersen J. (1919) p.35, fig.25.
3. Wideen H. (1955) Västsvenska vikingatids-studier, p.54, fig.26.
4. For instance, from Vesilahti; Kivikoski E. (1947) p.18, taf.104(808). One unprovenanced insular find is known: bm 56 7-1 1452).

Fig.92. Types of Group 03.

(1) Horningsea.
(2) Brentford (lm 0.2076).
(3) Battersea (bm 57 6-23 3).
(4) Cookham (read 287.47).
(5) Lichfield.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for these typological assumptions. The second variant is frequently pattern-welded as we have seen, but otherwise there seem to be no particularly significant structural features present in this group. Three associated finds occur however. One from London (bm 58 10-19 2) was found together with an example of the previous group 01, and the pair of medieval bowls described above;[1] another comes from the Thames at Staines dredged with a late axe-head, and another from Standlake (ash 1949 60), found together with an eleventh century type of axe and sword, The difficulties of assessing the various pictorial representations of angular bladed spear-heads have already been dealt with.[2] Distribution, apart from the familiar picture of large numbers from the bed of the Thames, is widespread, and apparently without significance.

Group 03 (fig.92), is made up of a relatively smaller number of spear-heads, similar in basic outline to the rest of the series, with slender angular blades, lozengiform in cross-section, with the angle well down at the base; but standing in the same relation to groups 01-2 as the earlier series C did to B; - that is with shorter blades on slender solid junction pieces and longer sockets almost invariably cleft for their whole length. In no

1. See supra p.269.
2. See this section p. 270.

example, however, are these disparate proportions so extreme as in the antecedent group C4. Lengths vary considerably between extremes at 28 and 70 cms., and although considerable variety of form exists, the group is not sufficiently numerous for more subdivision to be significantly made.

The "normal" form is smallish, usually no more than about 35 cms. in length, conforming to the basic outline which defines the group, with the blade somewhat shorter than the split socket and solid junction piece, with a moderately high, though still basal, angle to the blade, the obtuseness of which is to some extent modified by a slight strickening above towards the tip. The whole, lightly made, is typified by examples from the Thames at Brentford (lm 0.2073, 2075 and 28074)(fig.92(2). The figured example is rather small, but more or less complete. Others, more heavily constructed, are similar in every respect, save for the hint of concavity in the outline of the blade, and conform most nearly to the profile of the pagan series C3. This is best illustrated by a pattern-welded piece from the Cam at Horningsea (fig.92(1), or another, very similar but with a blade rather thinner in cross-section, from Moreton Swifts. Similar again, but with a closed socket decorated with thin scribed lines, is just a single piece from Cambridge (camb Z1392). More nearly conforming with the more

slender and disparate proportions of the pagan C4 group, are just two pieces, on lengthy and more lightly made closed sockets; one from Leomansley Pool at Lichfield (fig.92(5), and another from the Thames at Battersea (bm 61 6-20 5). Also included with this group on account of their general appearance, although with blade and socket proportions more or less equal, are a small number of rather long pieces. Two examples are structurally interesting: one from the Thames at Cookham (fig.92(4), measuring 69.6 cms., with a socket split right up to a "beaked" junction oval in section, has a pattern-welded blade, with a high obtuse angle. Very similar but with simple blades and closed sockets, are two rather smaller pieces from Reading (read 64 56), and London (lm A14746). A compositely welded blade with roughly the same proportions, comes from the Thames at Battersea, (fig.92(3), with a narrow socket split up to a shouldered junction, and a distinctly flared low-based angle. A very similar example occurs without exact provenance, but also probably from the Thames (lm(1).

Apart from these one or two pattern-welded examples, there is little direct indication of chronological limits for this group. None is decorated, or exhibits particular structural details of significance, although it is possible that "beaking" is generally an earlier

rather than later feature. This form is not recognised as a type by Petersen, and no attestedly late examples appear to be known from the continent, although commonly enough found in Frankish regions as in England during the sixth and seventh centuries. Typologically, however, it seems likely that this group represents a derivative form from the later pagan group C3, and the small number of examples which compose this group probably form a larger modification of the eighth and ninth centuries brought about by the general tendency towards bulkier spears during the later period. There is no evidence for a particularly late date for any example, however, and the form might not have survived even into the ninth century. The fairly general distribution of this group, is just what might be expected if this form is to be regarded as early in fact.

Series R. is the equivalent of Wheeler's late class C,[1] characterised by non-structural but decorative fullering applied obliquely at the junction, and in groups horizontally at distances down the length of the socket. Definition by ornamental rather than structural details represents a radical departure from the mode of classification otherwise adopted throughout this section. Wheeler was aware that this sort of horizontal grooving was mainly ornamental and "vestigial",[2] and the series

1. Wheeler R.E.M.(1935) p.171. 2. Loc.cit.

appears to account for profiles over a wide range of the two previously defined late groups of series M and O. Logically, therefore, spear-heads of this kind ought perhaps to be regarded as merely decorative versions of those other groups, with which outlines they otherwise correspond. But although they certainly should be used to provide evidence where possible for their respective groups in this way, they form in themselves a homogeneous and definable series, and one of the few that might be reasonably distinguished from contemporary continental or Scandinavian weapons, so that a separate classification, with this caveat, seems justifiable.

Wheeler suggested that fullering on the socket might have been used functionally to seat a binding to supplement the usual rivet,[1] but this does not seem likely. Wire bindings had been in use much earlier of course,[2] and there is some evidence for the later employment of cord or other flexible material on the socket or upper shaft;[3] but the sort of shallow horizontal fullering found in most examples would provide little of the necessary purchase, and the single example which shows more suitably close spiral grooving down the length of the socket, from Heidenheim (Württemberg)[4] has at the same time a welded

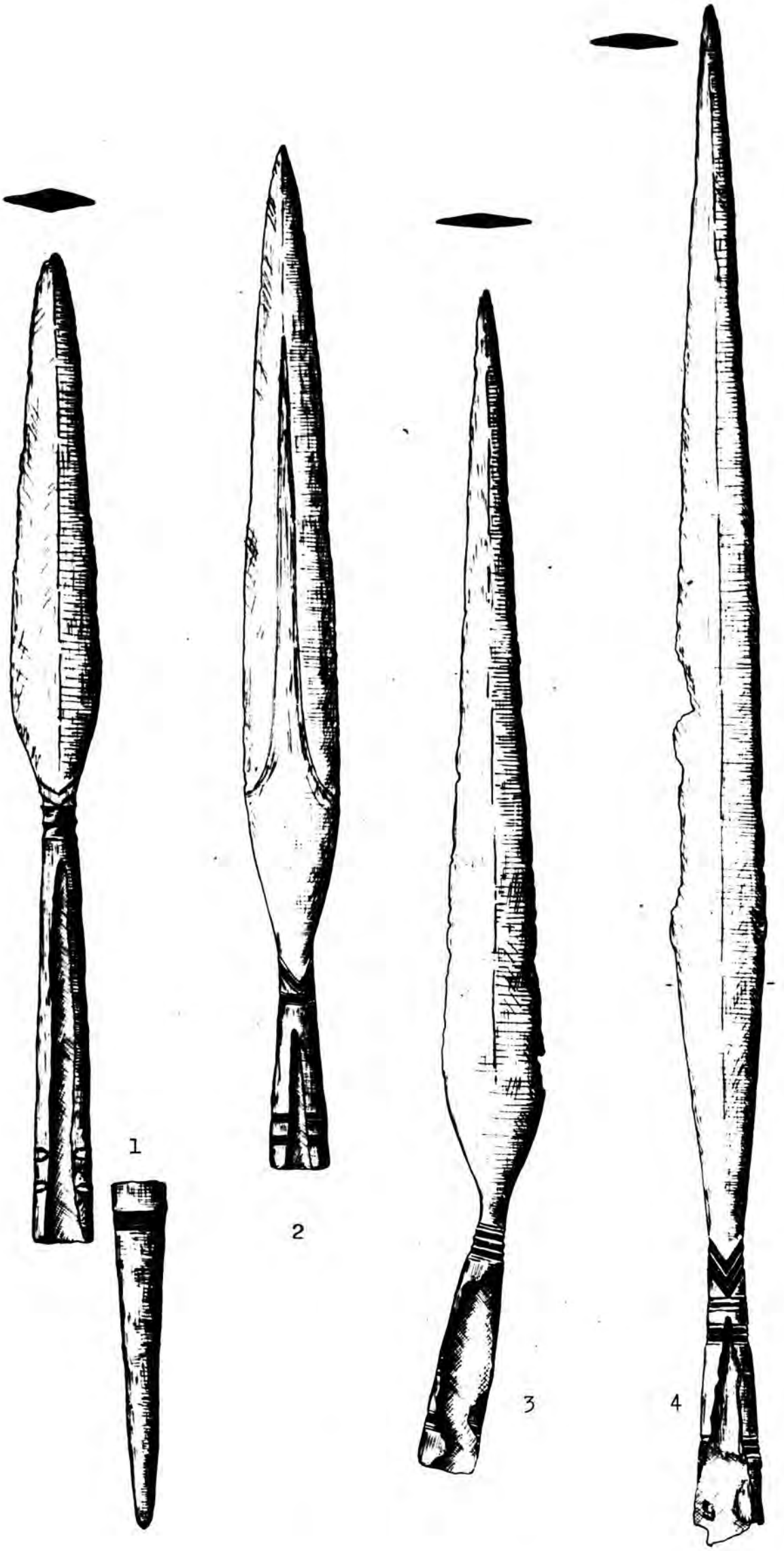
1. Loc. cit. 2. See section IV, p.379.
3. As in the spear of Longinus in an Aachen manuscript of the tenth century; Goldschmitt A. (1928) II, taf.3; or that held by Christ in Heaven in the Utrecht Psalter fol. 64v. See generally section IV, p. 378, and cf. p.445.
4. Stuttgart Museum, regs.11184/5.

tubular socket which obviates the actual necessity of such additional strengthening. If this was the functional origin of this feature, then it is at this stage quite vestigial. It seems much more likely to represent merely a humble form of that "light and dark" manner of ornament characteristic of the Germanic æsthetic at every period. Scribed decoration of this kind had been popular in Frankish and Alamannic regions from about the middle of the sixth century onwards, mainly in the form of oblique strokes at the junction and vertical lines in the lower blade,[1] which in more expensive examples are inlaid in bronze, silver or gold. In England a small number of examples are known from pagan graves with the sockets decorated in this way, perhaps in imitation of more expensive forms of inlay, which occasionally, as at Worthy Park or Merrow, present a similar concave section, acting to reflect more brilliantly with the light.[2] In all probability many more were ornamented in this way, which are presently hidden by corrosion, and not detectable, unlike dense metal inlays, by the use of radiography. In the same way, it would be reasonable to regard the long angular blades of Petersen's type F, which characteristically have the sockets covered with a close

1. Böhner K. (1958) taf.30(1); Werner J. (1935) p.101, taf.31(8); Stoll H. (1939), p.64, abb.4(4); Veek W. (1931), taf.71A, 71B, 72A, 73A; Werner J. (1955) taf.37(B2), 38(3), and 39(3)
2. Simple scored junction and sockets occur in blades from Malling Hill (bm 53 4-12 77) and Alton (alt. oc 952); See generally, section IV, p. 422 ff.

Fig.93. Types of Group R1.

(1) Bracebridge.
(2) Vauxhall, Thames (1m A1978).
(3) Brentford (1m 0.2057).
(4) Wandsworth (1m A7443).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sequence of fine scribed lines, as imitations of the twisted silver and copper wire herringbone inlays of his types I and K.[1] But type F appears to have originated by the middle of the ninth century, while types I and K appear only after the beginning of the tenth. Two examples of his type F occur in England, at Westcliffe, and from the Thames at Brentford (lm 0.1780), which must probably be attributed to Danish incursions during the reigns of Æthelred and Alfred. But Scandinavian models probably had no influence over the course of development of the insular series R, which universally with cleft sockets, seems to have originated with the latest pagan groups.

Group R1 (fig.93), is composed of foliiform blades which correspond with the outlines of those of groups M1-2:- lentoid in cross section for the most part, with lengthy blades and short cleft sockets, measuring between some 40 and 65 cms. in length, with extreme pieces from Higham Hill just 16.7 cms. and London (bm 56 7-1 1429) over 80 cms. long. Most of the group conform to the lengthier outline of group M1, including the singular piece from the Thames at Brentford (lm 0.2057)(fig.93(3), which although now broken, seems to have been the only example

1. Petersen J. (1919) p.31; and cf. those from Birka graves 624, and 832; Arbman H. (1943) pp. 205, 393, taf.vii(3,5).

of the series to boast a closed socket, indicated both by what remains, and a single rivet hole in the back. A small number, however, present more nearly the equal proportions of group M2, like an example from Bracebridge (fig.93(1), probably found in a river bed by its fine condition, together with what seems likely to be its slender conical ferrule, similarly grooved at the mouth; and others from Wilsford Down, Roebuck Ferry and Westminster (lm B29).

There is very little to indicate the chronological range of this group, but it seems probable that like the associated group M1-2, these spears are earlier rather than later in the later Anglo-Saxon period. One example from the Thames at Kingston (read 298 47) has a "beaked" junction and a pattern-welded blade; while another "beaked" piece from the river at Wandsworth (lm A1960) has a more simply composite blade, like others from Vauxhall (fig.93(2) and elsewhere from the Thames near London (bm 54 3-30 1).

Others of this group illustrating this sort of beaking which as we have seen might well be indicative of an earlier rather than a later dating,[1] include examples from the Thames at Staines (lm A10955), and at London (bm 83 1-12 1). The latter is a rather long piece, at about 70 cms., with groups of alternately wide and narrow fullers down the socket, and at the lower end on either side a small diagonal cross inlaid in iron wire. Clearly intended to be decorative

1. See section III, p.256, IV, p.395.

Fig.94. Types of Groups R2 (1-3) and R3 (4-5)
(1) Walthamstow (1m C786).
(2) Westcliffe.
(3) Brentford (1m 0.2046).
(4) Stangroud.
(5) Thames (1m A1784).

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rather than centering for rivet heads, for instance, this might be indicative of a tenth century date.[1]

Most examples of this group seem to come from the familiar middle reaches of the Thames, but with distribution scattered between Wiltshire and Lincolnshire, a general usage is to be supposed during the course of this period.

Group R2 (fig.94(1,5), is made up of blades angular in profile, with the blade accounting for something more than half of the whole. Lengths apparently vary between some 24 and 46 cms., but the majority conform to a regular pattern similar in profile to the second variant of group 02, like that from the Thames at Brentford (lm 0.2046)(fig. 94(5). A rather smaller number present the same proportions, but are a little narrower in the blade, like that from Walthamstow (lm C786)(fig.94(1). This form seems to have regularly either one rivet or two displaced nails at the mouth of the socket. As with the 02 group, a relatively large proportion in this form have pattern-welded blades, like those from the Thames off the Temple at London (bm 56 7-1 1436), others from Brentford (lm 0.2068), or Lakenham, or an example without exact provenance, but probably from the Berkshire reaches of the same river (read 244 62). It is with this sort of blade that the later ninth century Scandinavian type: Petersen's

1. See section IV, p.

type F, should be compared, like that from Westcliffe (fig.94(3). Although only fragmentary, the form is clearly very different, like the mode of decoration, finely scattered up the entire socket. In this insular group it normally forms a small group of rings at the junction, giving the effect of balustering of the S2 group, by shadowing in reverse.

One rather atypical and fragmentary piece, from Gowts Bridge in Lincoln, with the socket missing but three clear furrows at the junction, more nearly corresponds to the profile of the "pagan" group E1, which appears to have persisted at least into the later seventh century. One other possible example comes from the river Nene at Horsey, much longer and narrower than usual, measuring about 55 cms. The piece is not now identifiable but the drawing included by Artis, perhaps conforms more in general outline to that of some of the S groups. It seems, therefore, that this group presents a fairly homogeneous formal picture, although with little or no direct evidence for chronological limits, other than those of the associated group O2. All normal forms come similarly from the Middle Thames reaches.

Group R3 (fig.94(2,4), is made up of some mere half dozen examples of angular blades on rather longer sockets; corresponding thus with the general profile of group O3, and similarly varying considerably in length from some

24 to 55 cms. They vary too in mode of structure, some being stoutly, others more delicately made. Some, like that from Stangroud (fig.94(2), have a relatively high and consequently obtuse angle in a more lozengiform blade, while others, like that from the Thames near London (lm A1784)(fig.94(4), have the angle rather lower down. But all without exception have the socket split its whole length to the junction with the blade, and decorated with groups of fullers both at the junction and at periods throughout to the mouth.

Apart from the figured example from the Thames, which shows some signs of slag stringers which might indicate butt welding, no example exhibits any significant structural details which might give an indication of date. The example from Stangroud was reportedly found in a grave but no associated goods are known, and the museum records are unconfirmed. Apart from this example, all come from the middle reaches of the Thames near London. It seems likely on typological grounds, that this group, like 03, is to be derived from the Frankish influenced pagan group C3, which seems to have persisted until at least the end of the seventh century. Perhaps in this case, the small numbers of this group represent the last vestiges of a decaying form.

Series S, although generally more regular in proportion

and profile than series R, is similarly defined rather by additional features, which represent in this case the addition of extra metal in the form of a rounded bolster or moulded baluster, immediately below the blade at the junction with the socket. This is clearly structural, reinforcing the middle point which tends to become relatively weaker, with the increasing length of later weapons, unlike the purely decorative fullering of the previous series. It is recognised by Wheeler, although without more sophisticated description, as his late class A.[1]

Superficially similar balustering had appeared as early as the Vimose deposit of the Roman Iron Age, where it is stylistic rather than structural, and utilised to demarcate more firmly the transition between the square spike-like blade and the rounded socket, or similarly the tetragonal section shank of broad bladed barbed darts, from the circular mouth.[2] Occasionally this feature merely took the form of two narrow fullers, but more frequently has just the visual effect of those of groups S2 and 3. At Vimose, however, the effect had been achieved by the subtraction rather than addition of metal, and the intention therefore seems to have been more purely decorative. There is no obvious demand for reinforcement

1. Wheeler R.E.M. (1935) p.171.
2. See section II, p. 63 ff., fig.3(8-10).

in the particular models to which it was applied, and at Nydam I this junction transition appears unmodified in any way, although it is much less neat in appearance than earlier examples from Vimose.

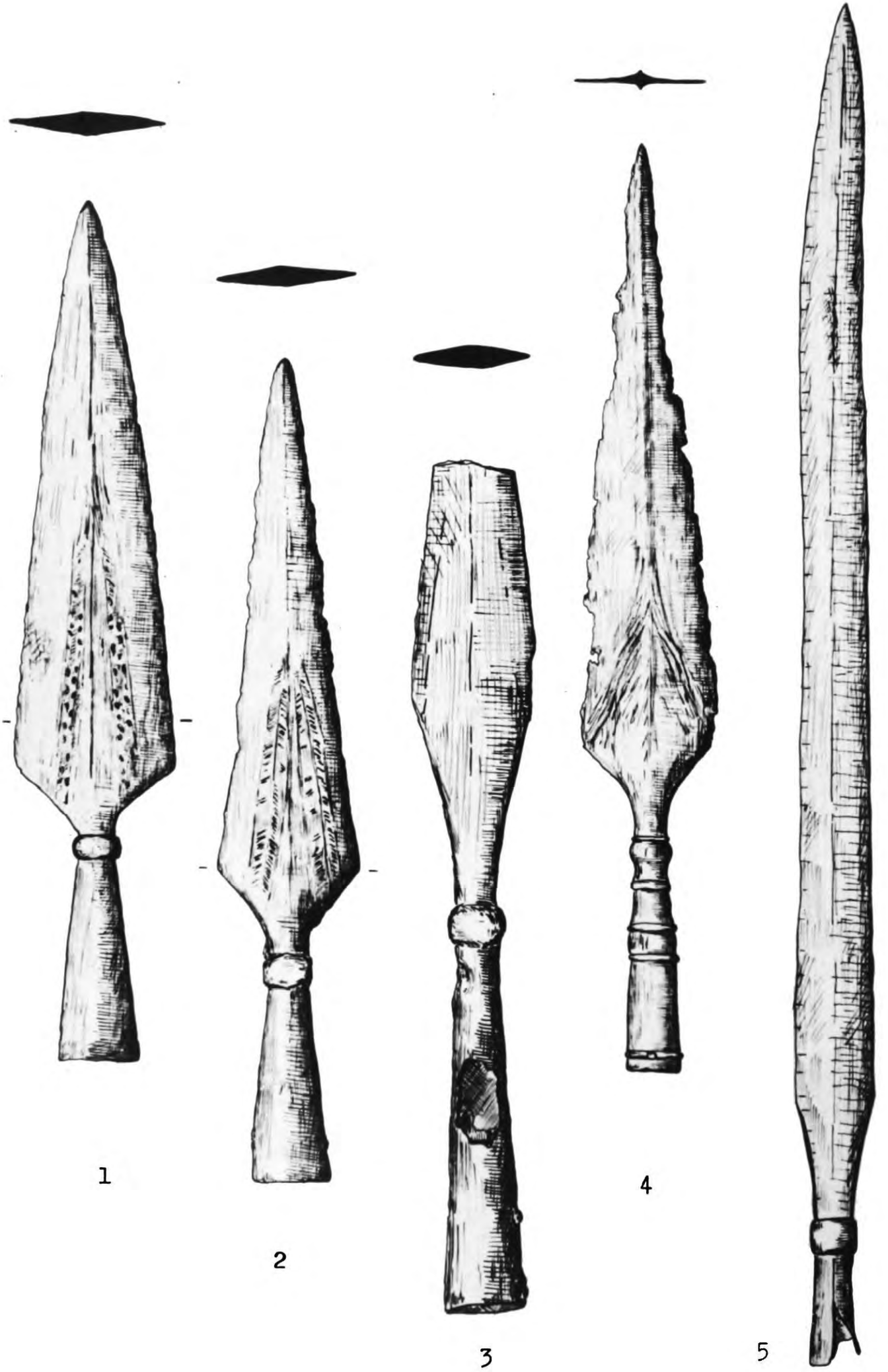
With the interval of a substantial hiatus, this feature occurs again, often identically, and occasionally in the form of very flat bands, in finds from sixth and seventh century Frankish and Alamannic graves.[1] Found usually applied to very much the same sort of weapons, short narrow and stoutly constructed blades, with little need for reinforcement at any point, its function would appear to be no more than that of the Vimose examples. Wheeler infers a direct line of continuity between these south German pieces, and the sort of structural bolstering familiar from Scandinavia during the later tenth and eleventh centuries,[2] but apart from this usually rather tentative visual similarity, the two forms must probably be considered as entirely separate developments with no evidence for either formal continuity or functional identity.

The later east Scandinavian mode of reinforcing the the junction of angular-bladed weapons with facetted metal, seems never to have been adopted in England, although one or two obvious imports are known;[3] and in the

1. Eg. Böhner K. (1958) II, pp.40, 42, taf.29(5), 30(4); Stoll H. (1939) pp.74,77, taf.32(36-7); Veek W. (1931) pp.209, 239, taf.71A(7), 71B(9), 73A(10).
2. Wheeler R.E.M. (1935) p.170.
3. See section IV, p.395.

Fig.95. Types of Group S1.

(1) Ely (camb 2702(b).
(2) Sonning (god 582 1956).
(3) Collingham.
(4) Winkfield.
(5) Kingston.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general development of structural bolstering, which seems almost invariably to have been the accompaniment of largish angular-profiled blades with delicately made junctions, two clear stages may be discerned: first the adoption from some uncertain source of the legitimate "baluster", a tripartite moulding made up of a convex band with a string line either side; and probably rather later, its simplification into a single bulkier bolster. The former, corresponding with our groups S2 and 3, seems to have been a largely insular development; with the latter, our group S1 found more widely in Europe.

Group S1, (fig.95), is for the most part very regular in form, with only a small number of minor variants. The "normal" outline, typified in examples from Ely (camb 22 702b) or Sonning (god(2)1956)(fig.95(1-2), is much that of the common second variant of group 02, but rather more stoutly made and with a closed tubular socket something over a quarter of the whole, and a single transverse rivet at the mouth; a broadish blade, lozengiform in section, has the angle placed basally, with a firm flare from the junction. The significant feature of bolstering by additional metal at the junction, occasionally takes the form of a simple iron ring or band, convex in section as at Launceston Down, or more frequently flattened or facetted in some way, as in examples from Bisham, Shiplake or Trowse. Lengths vary little between about

30 and 35 cms., and like the related variant of group 02, a large proportion seem to have been pattern-welded while others have composite blades.

A small number of pieces, while definable within the group, are somewhat atypical in various ways. Two fragmentary, but obviously longer and narrower pieces from Brentford (lm A18712) and Collingham (fig.95(3), have simple and unpronounced jumped-up bolsters at the junction between blade and socket, the proportions of which are less disparate than those of the normal form, and the angle of the blade rather higher and more obtuse, A single rather long and slender sword-shaped piece from Kingston (king 288)(fig.95(5), similar to the R2 example from Gowt's Bridge Lincoln in harking back to the outline of the earlier E series, has the simple flat bolster made from convex strip bronze. The socket of this piece, although fragmentary and bent, seems to have been closed down its length if not welded. Perhaps these atypical pieces represent rustic copies of the original form.

Others, like that from Winkfield (fig.95(4), represent something of an overlap with subsequent groups, in which the junction is characterised by a legitimate form of balustering. The Winkfield example has a composite blade and much the proportions of the normal form, but a jumped-up bolster similar to that on the Collingham piece; and with arbitrarily placed string lines down the length of the closed socket, it contrives a visual effect very

similar to some from groups S2-3. A single string line at the socket mouth is broken by the hole of a vertically placed rivet. Corroded and fragmentary examples from Aston Tirrold and from the Thames at Magdalen Bridge Oxford (ash 1884 514), must have been very similar. A single example from Iffley Lock makes a perhaps more valid transition between groups S1 and 2, with a blade just the outline of the normal S1 form, and a socket of more or less equal proportions, and at the junction a bolster with a string line closely placed either side, but flattened or facetted in the Sonning manner, with another string line some distance below.

This group must be formally related to the split-socket group 02, of which it forms merely a more stoutly made modification, and which is to be traced back to the latest of the pagan B series. And at the same time it is clearly associated with other complex-balustered groups of the series, for which there are also indications of a relatively early origin, and of which the bulky bolstering of this group might form a mere simplification, via appropriately overlapping pieces. Apart from the relatively large proportion of pattern-welded examples, the only significant physical feature is in the scalloped fork-and-wedge welding of the piece from Shiplake, which has late parallels in east Scandinavia.[1] No example seems

1. See section IV, p. 402, fig.104(1).

to have been otherwise ornamented.

That from Dimmocks Cote was dredged from the river together with an eleventh century axe, but another from the Thames at Oxford was dredged with a carinated pagan period shield boss, which acts merely as a caveat against the uncritical use of such chance associations.

Junction-bolstered spear-heads of this kind are represented in the later tenth century Benedictional of St. Æthelwold,[1] or during the earlier eleventh century in the manuscript of Ælfric's Heptateuch,[2] but more clearly identical with this group are representations from the second half of the twelfth century already considered.[3] It is possible that the example held by Goliath in the Pierpont Morgan Library MS.619, might well be intended as of antique effect, but the remainder of the armour is quite in place for the third quarter of the twelfth century, and there is no reason why this form, like others, should not have survived until this time. Bolstered junctions are found represented too in the Bayaux Tapestry,[4] although apparently applied there to foliiform blades, which is by no means supported by the physical evidence.

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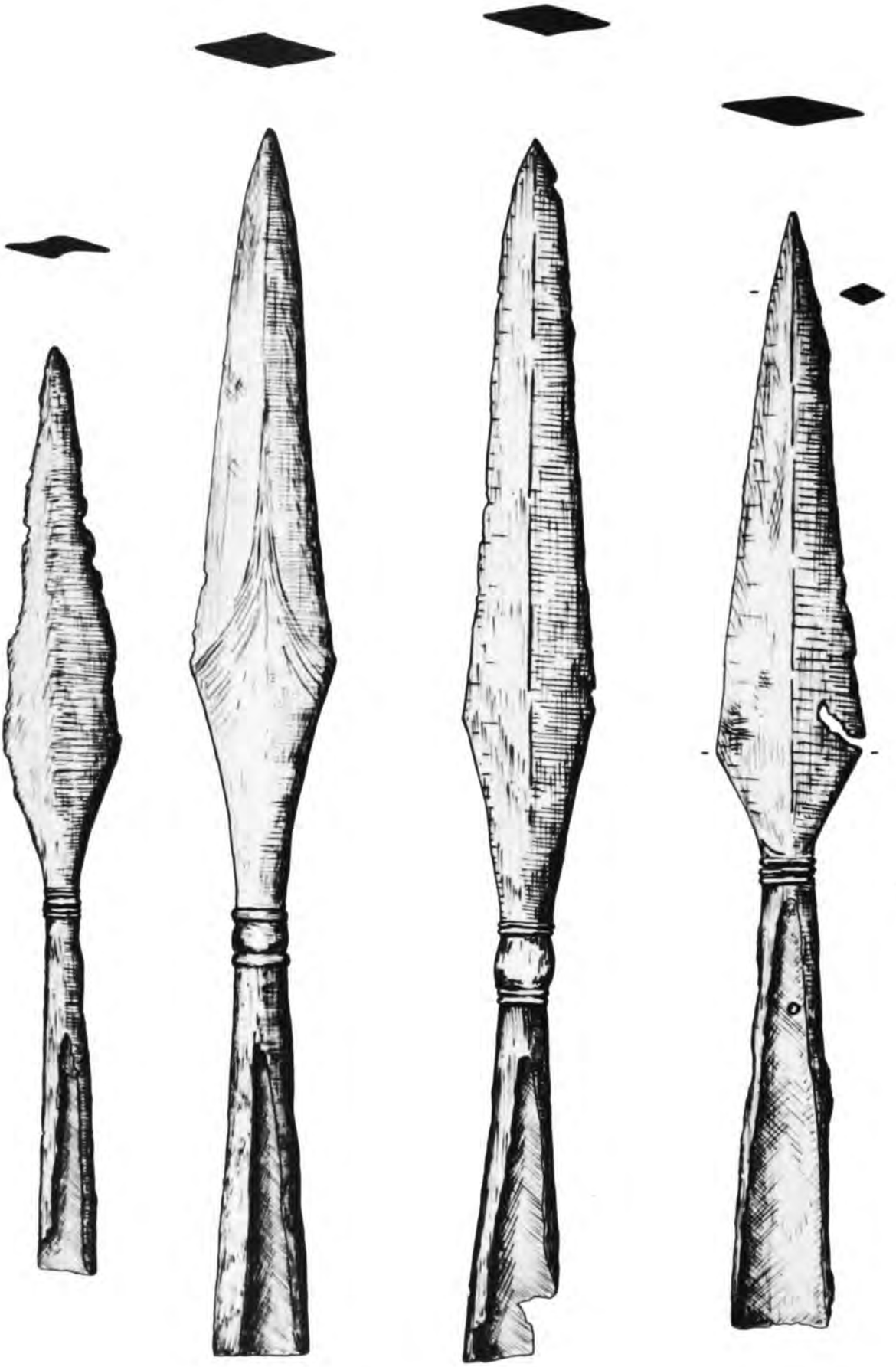
1. Fol.51, reproduced by Gage J. (1832) A dissertation on St. Æthelwold's Benedictional; Arch.XXIV, pl.20.
2. Fols.25, 25v, 39, 39v, 48, 49, 49v, 51, 53v, 61, 61v, 65, 66, 75v, 76; EM. MS. Claudius Biv.
3. See section II, p.324.
4. Stenton F. (1957) ed. The Bayeux Tapestry, pls.9,26,46,60, 68, etc.

The normal form of this group must obviously be related in some way to the small numbers of Petersen's type H, which he ascribes to the second half of the tenth and earlier eleventh centuries.[1] While found in small numbers in Norway at this time, like that from a grave at Tøndevold, (Gudbrandsdal), dateable to some time in the tenth century,[2] it is more characteristic perhaps of eastern parts of Scandinavia, like those from "Ridergraves" at Bengtsarvet, (Dalarna)which associated weapons and trappings probably place at the end of the tenth or the beginning of the eleventh century,[3] or at Köping (Vastmanland) which probably comes from some time in the first half of the eleventh.[4] Similarly some time in the eleventh century, is placed an example from Jämsä in Finland.[5] There seems to be no recognisable antecedent form for Petersen's type H. on the continent or in Scandinavia, but in England it appears likely, a priori, that the normal form of this group represents a simplification of the complex balustering of groups S2 and 3, and ultimately derives in profile from group 02, which in turn has its origins with the latest of the pagan B series. Spear forms, like other weapons, seem occasionally to have been little longer lived than

1. Petersen J. (1919) pp.29-31, fig.19.
2. Oslo Museum regs.C21860; associated with horse trappings and other weapons.
3. Stockholm. Hist. Mus. regs. 22393:2.
4. Westin G. (1941) En Västmanländsk Ryttargrav; Fornvännen 1941, p.85, fig.1(1).
5. Kivikoski E. (1947) p.17, taf.102(799).

Fig.96. Types of Group S2.

(1) Kingston, Thames (lm A27422).
(2) London (lm A16794).
(3) River Ouse.
(4) Thames (bm 68 9-4 8).



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styles of arnament. It is unlikely here that bolstering will have originated earlier than balustering, for which there is some indication of an early date. Perhaps an origin no earlier than the end of the ninth century would have found this group sufficiently established by the time of renewed Viking activity in England, to provide an imported origin for Petersen's few Norse examples, during the time of the island's absorbtion into Cnut's Scandinavian world. Certainly there is no evidence for an early origin, as there is for its survival at least into the twelfth century.

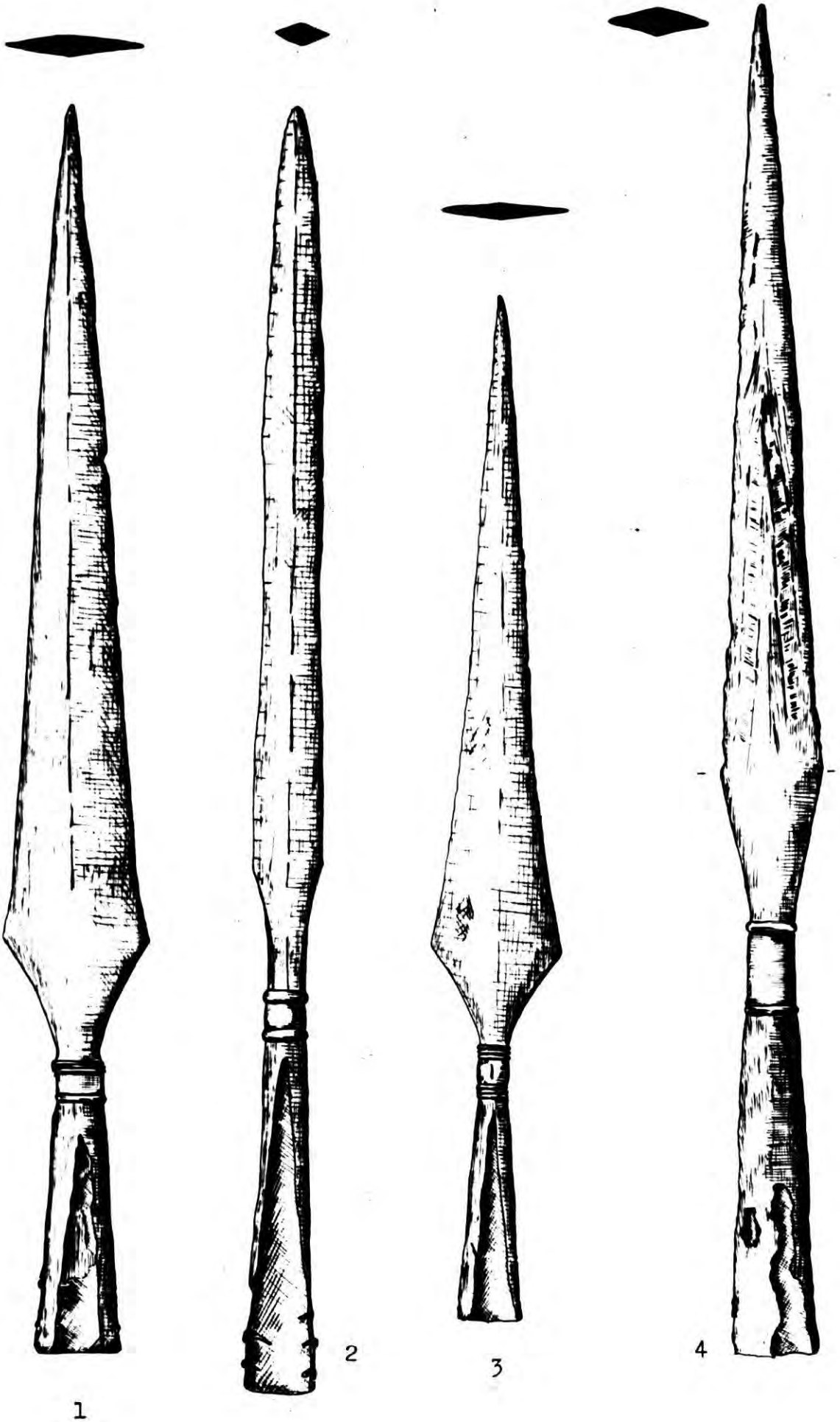
Group S2 (fig.96), like the rest of the series, is made up of angular-profiled blades, varying in length between some 25 and 35 cms. for the most part, with one unprovenanced example in the Cambridge Museum (camb Z1390) reaching 40.9 cms. The "normal" form, like that from London (lm A16794) (fig.96(2), presents an angular blade, stoutly lozengiform in cross-section, with the angle in the lower half of the blade but obtuse and placed relatively high. Marking the slender junction between the blade and a high split socket, which takes up about a third of the length of the whole, is a structural reinforcement with the appearance of legitimate architectural balustering. Simple balusters of this kind, occur most frequently - a convex band supported either side by a stout iron ring, as applied to examples from: Fimber,

North Hinksey (ash 1921 86), Standlake (ash 1914 65), or the Thames (bm 55 7-1 1444) for instance.

A small number of variations on this basic form occur. In some examples, like that from the Ouse (fig.96(3), the solid rings supporting the central bolster are replaced by two thinner wires, or three even finer string lines, as at Brentford (lm 0.2079, and 2120); or in another from Watford with three on the upper side and two on the lower. Occasionally the interstice is narrowed to merely another ring, as in that from London (guild. 11 4 06), or another from the Thames (bm 68 9-4 8)(fig.96(4). An example from Kingston (lm A27422) is divided into four simple rings, while an atypically slender piece from Grimston omits the interstice altogether with just two rings placed closely together at the junction. A similar spear-head from the Thames at Lambeth Bridge has the lower ring rather larger than the upper, and decoratively divided into pellets by vertical strokes; and above this the junction is octagonal, and below, the socket hexagonal, in section. A hexagonal socket possibly originally closed is seen too in an unusually broad piece from the Thames at Brentford (lm 0.2255), with a double baluster at the junction, the upper larger than the lower, divided by a single string line. A much smaller cleft-socketed example from the Thames at Mortlake (lm A14621) has the same sort of double balustering, significantly perhaps divided by thin bronze wires. One

Fig.97. Types of Group S3.

(1) Brentford (1m 0.2045).
(2) Ferrybridge.
(3) Northwald.
(4) Thames (bm 56 10-8 1).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other significantly different example remains in that from the Thames at Kingston, (lm A27422)(fig.96(1), where complex balustering is found at the junction of a blade which presents the distinctively staggered cross section of the pagan G series, and is reminiscent thus of the curiously balustered example of group G2 from Merrow.[1]

Group S3 (fig.97), is closely related to the former, similar in each of its features and with the same variations from the normal form, save that the proportions between blade and socket are rather more disparate, the socket taking up something more nearly a quarter of the whole. Some are broad with angles basally placed, as before, but most are rather narrower. Those from Ferrybridge (fig.97(2) and the Bure and Horning, like the curious pieces of groups R2 and S1 from Gowt's Bridge and Kingston respectively, present a narrow outline reminiscent of later "pagan" E series examples. A small number, usually with closed sockets, like those from the Thames at Brentford (lm 0.2090), Dorchester (ash 1960 1257), Putney (lm A25395), and London (bm 56 10-8 1)(fig.97(4); present the balustered feature in a non-structural almost vestigial form of two flat string lines at the junction, with little or no additional

1. See section III, p. 178. Cf. also a southern example from Heidenheim (Württemberg) (Stuttgart Mus. regs.8844.2), with three slight rings visible at the junction, and horizontal fullering at the socket mouth, with the helicoidal cross section of the blade shallow but plain. L.36.8.

reinforcing metal between. The remainder of the group retain the traditional high split sockets, with from one to three nails transversely placed at the mouth. The length of the group is larger than that of the former group, varying between 35 and 50 cms.

It is difficult to ascribe clearly delimiting dates to the defining feature of these two groups. A curiously narrow sort of baluster occurs in a foliiform blade from a grave at Raglunda, (Västmänland)[1] but Petersen recognises no later group of this kind, and the example is apparently unique. As we have seen, non-structural balustering has been found in phases since the Roman Iron Age, but there seems to be no kind of direct continuity between the sort of ornamental banding found in seventh century Alamannic spear-heads for instance, and these two groups. A singular piece from grave 72 at the Frankish cemetery of Eisenach, [illegible] found with a broad seax and a silver inlaid buckle ascribable to the seventh century, has a hexagonally sectioned closed socket, and decoratively scribed lozengiform and midribbed blade, with the slender junction balustered in just this manner, [illegible] without obvious parallels;[2]

1. Associated with a shield boss, buckles, horse trappings and stirrups, and dated to about A.D.1000. SHM. regs. 22146.
2. Böhner K. (1958) II, p.28, taf.29(3); but another "unique" example occurs in Alamannic contexts from Besigheim (Stuttgart Mus. unregs.) with 'true' rather than merely fullered balustering but where concurrently the flared concave lower angle of the blade almost universal to Alamannic forms, has been replaced by a straighter line common to these later types.

and it seems probable that essentially structural balustering of the kind represented in insular groups is largely an Anglo-Saxon development.

Unlike the often massive bolstering or group S1, the frequently very delicate balustering of groups S2-3 hardly lends itself to manuscript representation, and it seems more probable, for instance, that the bands around the junction of the lengthy foliiform blade held by the Christ of Harley MS. 603, fol. 64v, are intended to represent the upper part of those bindings which are shown to swing loose below. Physically there is little more indication of date than for group S1. A relatively large number, especially of group S3, seem to have been pattern-welded or given composite blades, while another of the latter group from Wilfholme, exhibits languets. The large majority have cleft sockets, and in those with closed sockets, the balustered features become slighter, and even vestigial, which is no doubt to be taken together as an indication of relatively later date. One from Islip was found with a gilt stirrup piece probably to be placed in the ninth or tenth centuries, and another from Ferry-bridge was associated with a blade of Petersen's type A, which he dates to the very beginning of the Viking period in Scandinavia.[1]

A small group of blades exhibit junction-balustering

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1. Petersen J. (1919) pp.22-3, fig.7.

of this kind, which in all other respects conform to "pagan" period groups, which is probably indicative of a relatively early origin for the feature in at least sporadic cases. Examples of the early group G2 from Merrow (fig.48(4) and Nassington (oundle) with the characteristically stepped blade section, both exhibit a complex form of balustering at the junction, the interstice of which at Merrow is taken up with a concave electrum band. Group G2 cannot be shown to have survived in any case into the seventh century, but the characteristic blade sectioning forms a convincing formal link with the more slightly helicoidal section of the obviously S3 piece from the Thames at Kingston (fig.96(1). An electrum band at the junction of the richly ornamented pagan example from Great Chesterford grave 51 (fig.106(1) is moulded clearly into the form of a baluster, yet the general context of this piece, its circles of bronze blade inaly, and the Style I kerbschnitt binding ring, all place this piece well into the sixth century. The junction of a G3 piece from Droxford (bm 1902 7-22 96) was similarly bound in bronze. The long-shanked piece from the Thames at Wandsworth (lm A56605), although with rather purposeless balustering half way down the lengthy solid shank, clearly belongs to group J4, which emerged only in the sixth century, and seems to survive only very sporadically into the seventh. In addition, a small unprovenanced piece (lm(3) has a legiti-

mate form of balustering at the junction of a blade which otherwise conforms in every respect with the group F2, which is probably to be dated to roughly the same century as the others. An even smaller piece from Hedsor, corresponds exactly with many examples of group I2, but had a double ring at the base of the blade. Despite the apparent consistency of dating, based largely on typological grounds, there seems little else to link these pieces together, and in view of the apparent hiatus beginning with the end of the sixth century, little to indicate that these form anything more than coincidental antecedents of group S3.

While recognising the essentially structural nature of this form of balustering, it is interesting to observe the emergence of balustering as an insular form of architectural ornament during the latest seventh and eighth centuries. Nothing of the kind seems to be known from France, whence Benedict Biscop, for instance, is recorded to have recruited his stone masons;[1] and architectural balustering at this time appears to have been an essentially insular and northern phenomenon.[2] Obviously no direct link is to be

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1. Bede, Historia Abbatum, 5.
2. Balustering takes the form of a notable bas-relief along the string courses at Hexham, and is found elsewhere at Jarrow, Monkwearmouth and Hart (co. Durham). This seems to have been a clearly distinct development from the pseudo-classical columns developed on the continent at the same time. Baluster shafts are revived again with the tenth century series of churches, in both north and south of England; (See generally Baldwin-Brown G. (1903) II, pp.190-200, et passim).

sought between the art of the black-smith and the stone mason at this tiem, but it is curious to observe the singularly insular development of the same sort of motif in distinct media over roughly the same period of time. No clearly delimiting dates can be proposed for this feature of groups S2-3, but it seems likely that beginning early perhaps with the end of pagan funerary customs in England, the form becomes increasingly popular, and survives at least until the second half of the ninth century, and perhaps beyond, developing into the simpler one-piece or jumped-up bolsters of the S1 group perhaps at about this time. Certainly typologically, as confirmed by the complex Merrow piece with a probable pagan date, those in which the separate wires or bands can be separately observed, as in the example divided by pieces of bronze wire form Mortlake, must be placed prior to those in which the feature is merged into one piece, or not even applied at all, but jumped up as an integral part of the socket, as with some of group S1.

The general distribution of the S series, forms a pattern much as might be expected. Group S1 are scattered throughout south and south eastern England, with a large number from the bed of the Thames. Groups S2 and 3, however, are more widely dispersed, from Fimber and Grimstone in the north to those from Waterbeach or Soham in the east Midlands, and again a large number

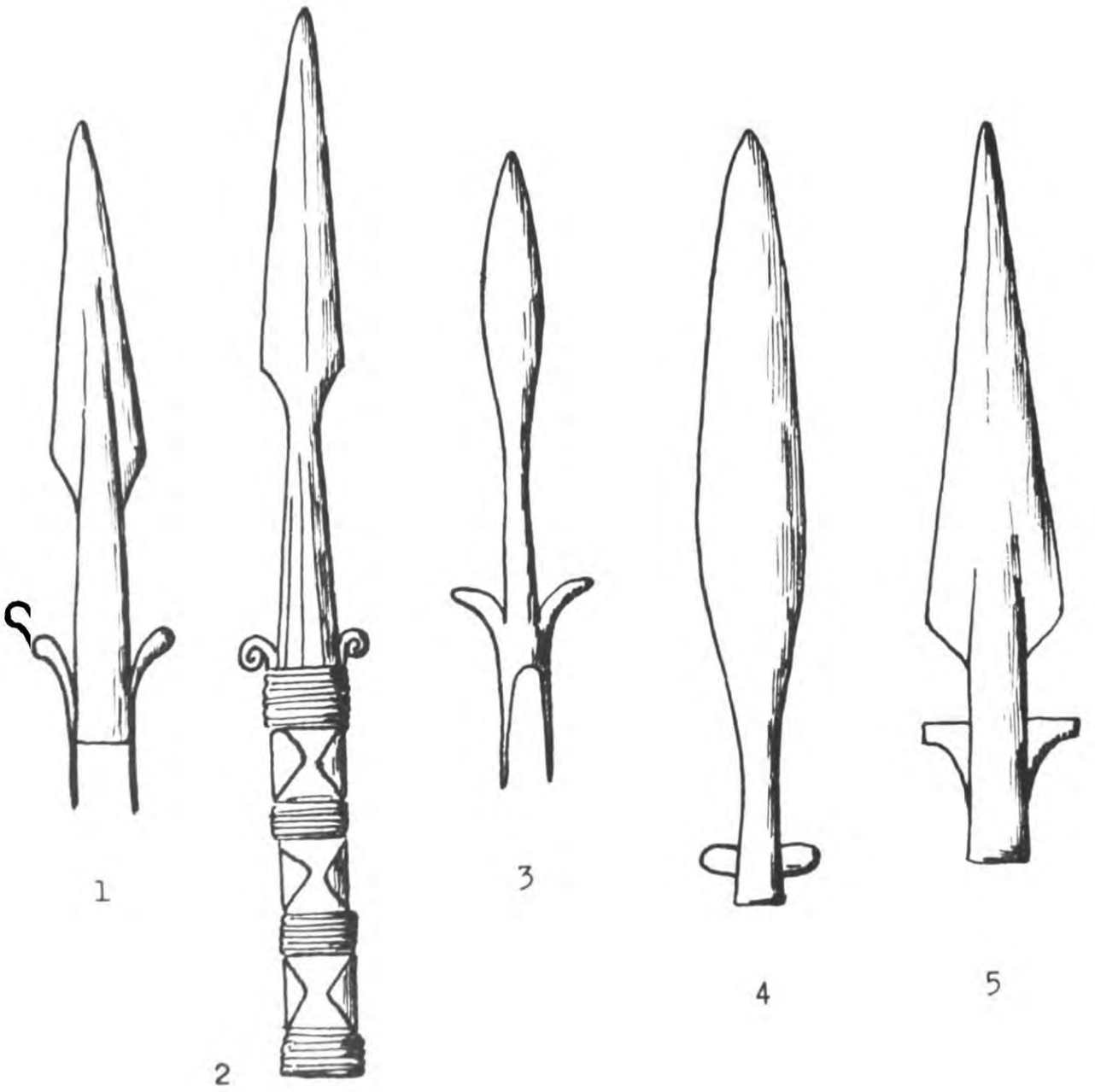

Fig.98. The evolution of the lugged spear, from the fourth to the tenth century.

from the Thames. This is as wide a distribution as any of the later groups, and perhaps supports the supposition of a relatively early rather than late date in the period.

Series T is made up of a small number of examples made familiar by Wheeler and others as the so-called "Carolingian winged" variety, characterised by the time of the English finds by sturdy plate lugs welded onto either side of the socket base. Variously described in the past as "boar spears" or "mail-thwart" spears, it seems probable that the form is to be functionally identified with the lugs intended for some parrying movement.[1]

It does not seem likely that the form was introduced to the Anglo-Saxons before the eighth or ninth centuries, but the continental line of development, although lengthy, is quite clear - shown schematically (fig.98).[3] Apart from a single curious example figured on a piece of second century Samian ware,[2] the form seems to appear for the first time in Germanic finds ascribable to the fourth century. The most familiar piece is that from the well known military grave at Vermand, with a single remaining bronze lug, curved over and round in section with an

1. See section VI, pp.611-2 **et passim**.
2. Chenêt G. (1930) Die Erforshung der gallo-römischen Töpfereien in den Argonnen seit dem Anfang des zwangzigsten Jahrhunderts; Germania XIV, abb.5.
3. The later phases of the development are touched upon briefly by Reinecke P. (1899) Studien über Denkmäler des frühen Mittelalters; Mittheilungen der Anthropologischen Gesellschaft in Wien, XXIX, espec. pp.35-8, taf. I (1-12).

expanded terminal moulded into the form of a beast head, which is rivetted into the side of a stout closed socket bound round with iron wire.[1] Decorative scribed lines, perhaps originally picked out in niello, run vertically from the upper part of the socket to a low based angular blade. Very similar in outline is an unprovenanced example in the museum at St. Germain-en-Laye, with rounded section lugs, curved over and with expanded but plain terminals of the same kind, but made of iron and flattened below, welded onto the sides of the socket, extending into fragmentary languets beneath.[2] Similar in every respect of proportion and detail but made on foliiform blades, are two others from further south: one from an iron hoard near Tutlingen (Württemberg) dateable to roughly the fourth century, with lug-languet pieces, not welded but rivetted into place on the lower part of the socket[3]; like another from a warrior's grave at Hammelburg (Unterfranken), associated with other weapons, belt attachments and a glass cone beaker, which has been dated to the later fifth century.[4]

Languets, or ribbon cheek pieces made to protect the uppermost part of the shaft, are found on a small angular spear-head from Furfooz, made integrally with the socket

1. Boulanger C. (1905) p.47, text figure.
2. Regs. 80264.
3. Stuttgart Museum regs. A2475.
4. Werner J. (1956) Beiträge zur Archäologie des Attila-Reiches p.125, taf.57(16).

and cut out of its lower face sides,[1] but from this time onwards their development seems to have been as a corollary of lugs, made separately and placed on the rivet sides of the lower socket, that is transversely. No early example is found from a grave context within the Alamannic area, but perhaps under the influence of Lombardic forms,[2] this feature is adopted along the middle and lower Rhine during the sixth century, where it takes the form, in a recognisable Frankish group, of long double scalloped languets, tightly scrolled over into small lugs at the upper end, and bound on to the lowest part of the socket, and at regular intervals along the upper shaft, with iron wire.[3] This variety seems to survive at least until the middle of the seventh century, as in the example from grave 37 at Köln-Müngersdorf, where it was associated with a broad seax and tausia buckle.[4] An example from Losheim, with much the same profile as the Vermand piece, has the lug-languet pieces still made separately, and here wedged into the place with a circular forcing band;[5] but in general during the course of the

1. From grave J11; Nenquin J.A. (1953) p.82, fig.18.
2. Eg. an early seventh century example from grave F at Castel Trosino, buried with a sheet gold cross and Coptic bronze bowl: Mengarelli R. (1902) La Necropoli barbarica di Castel Trosino, col.197, fig.35; and cf. those from graves 6 and 145 at Nocera Umbra: Pasqui A. and Paribeni R. (1919) Necropoli barbarica di Nocera Umbra, p.180, fig. 26.
3. Lindenschmitt L. (1880) p.176, fig.72; Böhner K. (1958) pp. 24, 42, taf.30(2-3).
4. Fremersdorf F. (1955) Das Fränkische Reihengräberfeld Köln-Mundersdorf, p.140, taf.8(16), and cf. gr.66, p.143, taf.12(1).
5. Böhner K. (1958) II, p.71, taf.31(3).

seventh century, these side pieces are firmly welded into the socket, so as to appear almost integrally structured. Higher up in the socket than structurally necessary before but still curved over and narrowing in the manner of simple horns, and most often with languets welded below, this becomes the well known Frankish lance à crochets,[1] familiar from seventh century contexts at for instance Bourogne, Hillesheim or Hohenfels.[2] The separately made and wired on scroll-like lug-languet pieces, seem invariably to have been applied to low-based narrow angular blades, frequently with solid shanks and octagonally facetted sockets, of a familiar Alamannic variety, although rather curiously none actually appear to be found in the south. But the compositely made lugs, solid and in one piece, or at least carefully welded with the socket, are applied indifferently to blades either of this form, or the slender leaf-shaped variety which predominates in continental finds of this period.

In the later seventh century, however, the final significantly morphological stage of development takes place. From grave 290 in the Alamannic cemetery at

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1. Wylie M.W. (1853) p.55, following earlier French scholars mistakenly identified this for the lancea uncatis described by Sidonius, but apart from the chronological disparity of some two and a half centuries, this feature clearly lies within the development of lugs, and not barbs in any sense; See generally this section, pp.233-4.
2. Scheuer F. and Lablotier A. (1914) Fouilles du Cimitière Barbare de Bourogne, p.29, fig.14; Böhner K. (1958) II, pp. 41, 51, taf.31 (1-2).

Bülach comes a spear-head of the familiar narrow angular form, with a lengthy octagonally facetted socket, complete with fragmentary but lengthy languets, where lugs made in one piece welded onto the lowest part of the socket present horizontally placed rectangular plate-like proportions apparently for the first time.[1] An important example from Kornwestheim (Württemberg)[2] has a similar plate lug-and-languet piece soldered onto the lower socket over the rivet, which seems to have been hammered in place first. This would appear typologically either as an intermediate stage, or a poor copy of the Bülach type described, but the find was unfortunately unassociated. From further north, in Lower Saxony comes an example from a grave at Garstedt, associated with a single-edged sword and a "sugar-loaf" shield boss. In this slender foliiform blade, the languets have been abandoned, presumably as a result of the greater effectiveness of simple plate like lugs welded onto the lower part of the socket.[3] Thus from some time in the seventh or the earliest eighth century the classical form of the "Carolingian winged lance" seems to have been established, as seen represented twice, for

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1. Werner J. (1953) p.132, taf.xxxv(11) Cf. an example from Ursins: Tschumi O. (1945) Burgunder, Alamannen und Langobarden in der Schweiz, p.166, abb.51.
2. Stuttgart Museum regs.2470
3. Jacob-Friesen K. (1939) p.276, abb.360.

instance, in the Hornhausen stone;[1] although right up until this time, Vermand style curved round-section lugs seem to have survived in their original form, with, in one instance from Bargen (Baden)(fig.105(2) even their lion-headed terminals remaining. From this time onwards the only significant development of the form seems to have been in the increasing size and proportions of the plate-like lugs, with languets abandoned for ever.

It is at this stage, that the form will most probably have first been introduced into England, largely as a result of the North Sea activities of eighth and ninth century Vikings, to whom this essentially southern development, seems to have been introduced only a very little earlier. A small number of spear-heads with languets and even forcing bands of the Losheim variety, are found in insular graves from the sixth century onwards,[3] but the stoutly made closed welded socket, structurally prerequisite for the additional feature of parrying lugs,

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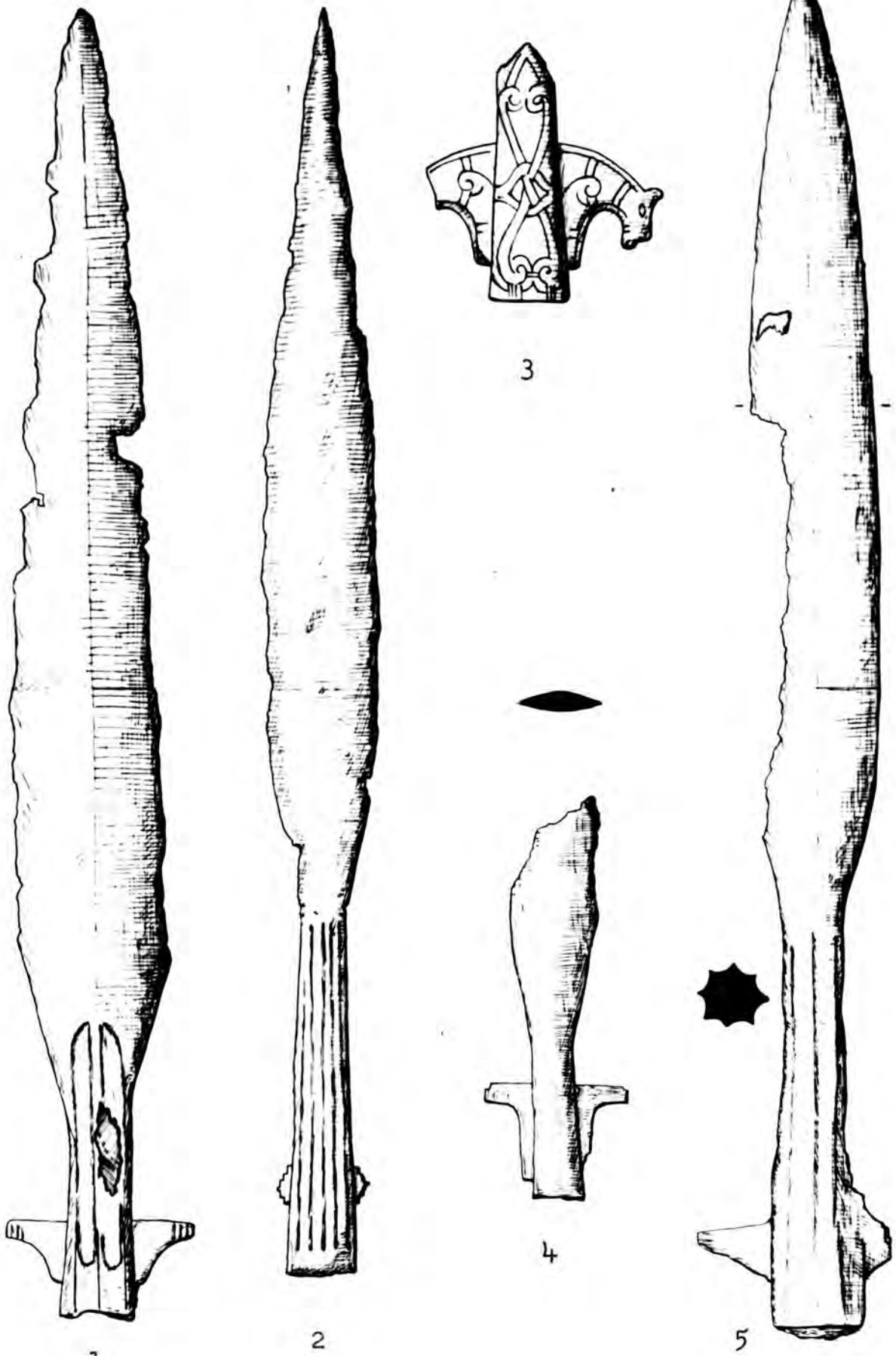
1. Hahne H. (1929) Der Reiterstein von Hornhausen; Mannus-Bibliothek XXII, pp.171-80. Radford (C.A.R. (1942) The Sculptured stones at Hornhausen; Antiquity XVI pp.175-7) argued for a tenth century date on historical-geographical grounds, but general opinion places them in the later Merovingian period (eg. Holmqvist W. (1939) Kunstprobleme der Merowingerzeit, pl.xx, ff.). On the grounds of the spear representations themselves, one shows the relatively early feature of midribbing, which seems to have disappeared largely by the end of the seventh century on the continent.
2. Dauber A. (1955) Ein fränkisches Grab mit Prunklanze aus Bargen Ldkr. Sinsheim, (Baden); Germania XXXIII, pp.385-90 taf.39, abb.3, and cf. Jankuhn H. (1955) Geschichte Shlesvig-Holsteines, III p.30, abb.6(b); a grave at Frestedt, associated with a sword and "sugar-loaf" shield boss.
3. See section IV, pp. 382-4.

Fig.99. Types of Group T.

(1) Henley (fead 236 62).
(2) Brentford (lm 0.2087).
(3) York. (4) London (bm 56 7-1 1448
(5) Thames (sheff J93 1279).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seems not to have been generally adopted by Anglo-Saxon smiths until much later. Even among Kentish warriors of the seventh century, who seem to have been well enough acquainted with contemporary Frankish armament in general, the form was apparently not adopted,[1] and each of the odd dozen and a half examples from England, is probably attributable, like those in Scandinavia, to some time from the eighth century onwards.

A small number are clearly recognisable as imports, but from the remainder it is difficult to assess whether or not the form was ever "naturalised". It is difficult to imagine the best of the Old English fyrd, however, ealdormann Byrtnoth's Eastseaxena ord, for instance, not being equipped with the most advanced armament available by the tenth century. An example from the Thames at Brentford (lm 0.2087)(fig.99(2), a pattern-welded folii-form blade with a closed socket decorated with shallow vertical fullering, clearly belongs to that sub-variant of Petersen's type C having small stepped vestigial lugs at the point of the rivet, which he dates in Scandinavia to the second half of the ninth century.[2] Petersen is

1. The form is by no means likely to have been beyond the skill of the Anglo-Saxon weapon smith at his best, and unlike more costly helmet or body armour, is not so likely to have been sufficiently valuable to have been seized by a dead man's heirs. Perhaps in the present absence of well preserved armament from Anglo-Saxon furstengräber such a find is not to be expected at this period.
2. Petersen J. (1919) p.24. An example from the Seine near Paris (St. Germain-en-Laye Mus. regs.26121) shows the presumably late feature of a pattern-welded veneer inset to the blade, (See section IV, pp. 406-10.)

apparently aware of only three pieces like this, but it seems likely to have been a northern production.

Other forms found in larger numbers in England, appear to correspond in general with types recognised by Petersen which he dates from the eighth to the tenth centuries in Scandinavia; but he is over-cautious in extending the upper chronological limit, and there is some evidence for the survival of this form well into the twelfth century at least.[1] The basic form of Petersen's type B is just that of his type A, as seen in this country at Ferrybridge[2]: a broadish foliiform blade, lentoid in section, with a smooth line in profile running from the tip to a closed socket, decorated with shallow curved vertical fullering. To the base of this socket, placed transversely just above the rivets, are two relatively small short plate lugs, horizontal along the top edge and inwardly curved beneath.[3] Most of the examples found in England which correspond roughly with this form, like that from the Thames at Henley (fig.99(1), seem to have been larger and more stoutly made than the average, measuring from some 45 to 50 cms. in length, with one unprovenanced example, probably from the Thames near London (1m(10), reaching 58.6 cms. They are dateable in Scandinavia to some time early in the Viking period, and perhaps largely to the eighth century

1. See section II, pp.326-8.
2. See this section, p. 297.
3. Petersen J. (1919) p.23, fig.8.

although some at least extend into the ninth, like that from grave 850 at Birka.[1] Vertical socket-fullering is found on a single pagan kind profile corresponding with group I5, from an Alamannic context at Würmlingen (Württemberg),[2] and although this sort of socket decoration has been generally regarded as a characteristically northern production, as found in spears of Petersen's types A, B, C and E, it is found occasionally in western Europe too. Spear-heads corresponding with the simple foliiform blades of Petersen's type A, which he dates to the very beginning of the Viking period in Scandinavia,[3] are found here at Pierowall (c.800A.D.), in northern France, and much further south at Poppenweiler (Württemberg),[4] while also from northern France comes an example of his type B.[5] And yet Scandinavian Viking movements only become of importance in continental Europe from the middle of the ninth century onwards so that these examples can hardly have been introduced by the Danish armies of Ragnar Lothbrok, if Petersen's dating be credited. Unlike northern finds at this time, however, no west European example appear to have been found with useful associations, and typical is that from

1. Arbman H. (1943) pp.324-5, taf.vii(2).
2. Stuttgart Mus. regs.165.
3. Petersen J. (1919) pp.22-3.
4. Museum at St. Germain-en-Laye, regs.34890; Stuttgart Museum regs. 55/40.
5. With no more exact provenance: Museum at St. Germain-en-Laye, regs.34890.

Burglenfeld, similar in every respect with Petersen's type B, although too corroded to ascertain whether or not with socket-fullering.[1] A B-type from Pîtres in Normandy, bears in the centre of the blade a mounted cross inlaid in gold, which seems hardly likely to have been carried by one of the heathen host, unless as plunder.[2] The general Carolingian interdiction on the export of arms to the north at this period[3] makes more obscure the question of origin of these later lugged forms, though there can be no doubt that in essence, it was an essentially southern development initially. With Scandinavian interests in England arising somewhat earlier, from the last years of the eighth century, it is just possible to ascribe the insular finds of Petersen's types A and B to introduction from the north rather than from the south.

The normal form of Petersen's type C is much the same as his type B, save that the underpart of the lug is extended downwards in a vertical strip plate towards the mouth of the socket, a development which he places roughly within the second half of the ninth century.[4] A good example from Nottingham, fragmentary but measuring some 63.8 cms. in length, was found associated with a sword of

1. Stroh A. (1954) Die Reihengräber der Karolingisch-ottonischen Zeit in der Oberpfalz. pp.13-4, taf.5(57).
2. Coutil L. (1913) Armes et Parures Scandinaves. p.11.
3. In fact from about 779 A.D.: Capitularia Regum Francorum, Carol. MLVI c.VI; 223. or no.XX; pp.755, 961, 198; Capitularia Regum Franciae Occidentalis; Karoli II; II 25, p.321, and cf. I 7, p.190. Cited by Salin E. (1949-59), III, pp.279-80.
4. Petersen J. (1919) pp.23-4, fig.9.

Petersen's type X, which is to be dated to the last quarter of the ninth or the first half of the tenth century.[1] But two others from England; both probably from the Thames at London (bm 56 7-1 1448; lm.O.2083b)(fig.99(3), are much smaller and more slightly constructed than normal in Scandinavia, and the latter without even the usual form of decoration applied to the socket. Just possibly this might represent a naturalisation of this type, perhaps parallel with the smaller sized shield bosses developed with the Norse settlement of Ireland,[2] but no firm argument could be based on just these examples.

Petersen's type D, is made up of a conglomeration of lengthy foliiform blades following the general trend towards more slender profiles, and broader low based angular blades, both with simple lugs placed low on either side of the socket, and occasionally extending long below, but in a gentle curve, unlike the characteristic armed L-form of his type C.[3] While noting the late looking silver engraved ornament on the socket of the angular piece from the barrow at Gaarder, (Romerike) Petersen hesitates on typological grounds to ascribe these to any other than the tenth century.[4] But the similar well known piece from grave I at Tuna in Uppland must surely be placed some time

1. Ibidem, pp.158-67.
2. Shetelig H. (1940) III, pp.34-5.
3. Petersen J. (1919) pp.24-6, figs.10-11.
4. Ibidem loc.cit.

about A.D.1000,[1] while the narrow leaf-shaped pattern-welded blade from Braham's Farm, Ely, (fig.107(2) has a socket silver plated and engraved in a Scandinavian style of about the same time; and there is no reason to believe that this form did not in fact survive well into the eleventh century. In this country apart from a single possible angular-profiled piece from the Thames at Cookham (read 327 58), curiously squat and broad in the junction, each of the examples attributable to Petersen's type D, are foliiform. Two, from Wandsworth, and from the Thames (sheff J93 1297)(fig.99(5) have sockets deeply fluted on eight sides, whilst others, like an inexactly provenanced piece probably from the Thames near London (lm 0.2083b), is similar to those already mentioned, being small and slightly made, with a socket octagonally facetted.

The general form of this series seems to have continued unrecognised by Petersen, well into the twelfth century, especially in the east of Scandinavia, with more elaborately proporttioned lugs, invariably in angular blades, curving either up or downwards.[2] Three examples of this late development are known from insular finds. From the river at Dorchester-on-Thames (ash 1963 1397-1402(4), comes a very corroded, but clearly pattern-welded blade, with one

1. Arne T.J. (1934) pp.24-5 taf. iv(8-10).
2. Eg. Kivikoski E. (1947) taf.144(1110-1). Horned lugs curving either up or down are found sporadically throughout the Harley 603 Psalter.

remaining lug welded onto the short socket, curving upwards to a moulded terminal. Another broader angular blade without known provenance (bm 56 7-1 1449), has the socket and lower blade decorated with straight lines of notched work resembling the effect of beaded borders, and large round bronze rivet heads with pearled collars, said at one time to have been silver plated; and just above, large plate lugs, the upper edge curved downwards and with a large semicircular bite removed from the lower side. No exact date is to be placed on this piece, but a close comparison must be drawn with the cast bronze socket from York, made tapering and complete with plate lugs of this kind, downward curving with the end cut out and decorated to resemble a horse head in profile, and with a lightly engraved Ringerike style decoration running over from the socket proper, (fig.99(4). What are apparently the separately made lugs of foliiform blades are depicted held by the soldiers of a sepulchre scene from the tenth or early eleventh century missal MS. Harley 2908,[1] and the York piece might very well be of English workmanship, if ultimately inspired from Scandinavia.[2] But the former example from Dorchester, with upward curving and moulded lugs, while given a useful terminus ante quem by pattern-

1. Fol. 53v. Reproduced by Fairhol F.W. (1846) Costume in England, p.54.
2. Kendrick T.D. (1949) Late Saxon and Viking Art, p.102. Talbot-Rice D. (1952) pp.228-9, considers this to be an actual Scandinavian import of about 1000 A.D. Of course York was a "Viking" city at this time.

welded veneering, which seems to have been abandoned by the beginning of the eleventh century, has scroll-like finishes to the lower end of the pattern-welded panels, which is a feature not normally found in insular workmanship.[1] The moulded terminals are not remarkable, save for their rarity, being found just during the fourth and seventh centuries before this time. One rather curious piece remains from the Thames near London (bm 88 7-19 45) which must be ascribed to this series, with a flat, very low-based angular blade, the socket scribed vertically to achieve the effect of facetting, and with scalloped lines at the mouth; and with miniature vestigial lugs either side, not unlike the small stepped pieces already described from Brentford, but perfectly proportioned. This has the appearance, although on nothing other than purely formal grounds, of being relatively late.

One apparently late development unnoticed by Petersen, is in the rise of rectangular plate lugs joined to blades of various profiles. It occurs in only one actual find from northern France,[2] but is commonly depicted in manuscript illumination from the latest tenth or eleventh century.[3]

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1. See section IV, pp. 406-7, fig.104(4).
2. St. Germain-en-Laye Mus. regs. 23800.
3. Eg. the Benedictional of St. Æthelwold fol.9; (Gage J. (1832) pl.11); a late tenth century Reichenau MS. (Goldschmitt A. (1928) II, 24); the Echternach Codex Aureus fol.78 (1035-40 A.D.)(Graber A. and Nordenfalk C. (1957) p.212), or the Boulogne Psalter (c.1000 A.D.). (Westwood J.O. (1868) pl.39).

There is some evidence then, for the use of various forms in this series, in England, at least from the time during the later eighth century, when it sppears to have been first introduced to the Scandinavians, until its latest developments. Insufficient material remains to assess whether or not the form was ever adopted as a natural kind by Anglo-Saxon smiths, although some of the more lightly constructed pieces seem peculiar to England, and it is hardly credible that Anglo-Saxon warriors should not have ensured possession of the best arms available. Such expensive weapons were surely not lightly abandoned if lost, however, and the relatively small numbers in museum collections may not be a fair indication of the popularity of this form by the end of the Anglo-Saxon period. It seems probable that the emphatic cross-bar strokes found commonly in manuscript drawings of the tenth and eleventh century, are intended to represent perhaps some kind of nail-like, or more perishable substitute.[1]

The entire question of national interactions of the T series, like other of the later groups, however, must lie in abeyance until a reassessment of Scandinavian material, and more particularly, an adequate survey of Carolingian and Ottonian weapons in continental museums. In summary the general pattern of insular development during the later Anglo-Saxon period presents a very much

1. See section IV, pp. 387-90.

more pruned and simplified picture than that of pagan times. This may be in part more apparent than real, with no possibility of defining regionalisation of variant forms, and with little to indicate any sort of conclusive chronological grouping. But at the same time, the greater degree of mobility within the nation brought about to some extent by unification in face of alien hostilities from the end of the eighth century onwards, together with the general breaking down of barriers that progress brings, seems to have produced inevitable restiction and uniformity which viewed close up seems as likely to have been the result of ultimate mongrelisation, as the strong dominance of any particular groups. There is some evidence for a not inconsiderable overlap of seventh century forms beyond the abandonment of pagan funerary customs, but by some time in the eighth century, the emergence of recognisably late groups, not infrequently pattern-welded, seems clear. Most, simple angular or foliiform profiles, though partaking in the general trend towards larger and more stoutly made weapons, are clearly traceable to known groups predominating in the later pagan period; and throughout later Anglo-Saxon times the pattern is one of the modification of traditional profiles, rather than the introduction of novel forms. The one exception to this, so far as the insular tradition is concerned, lies

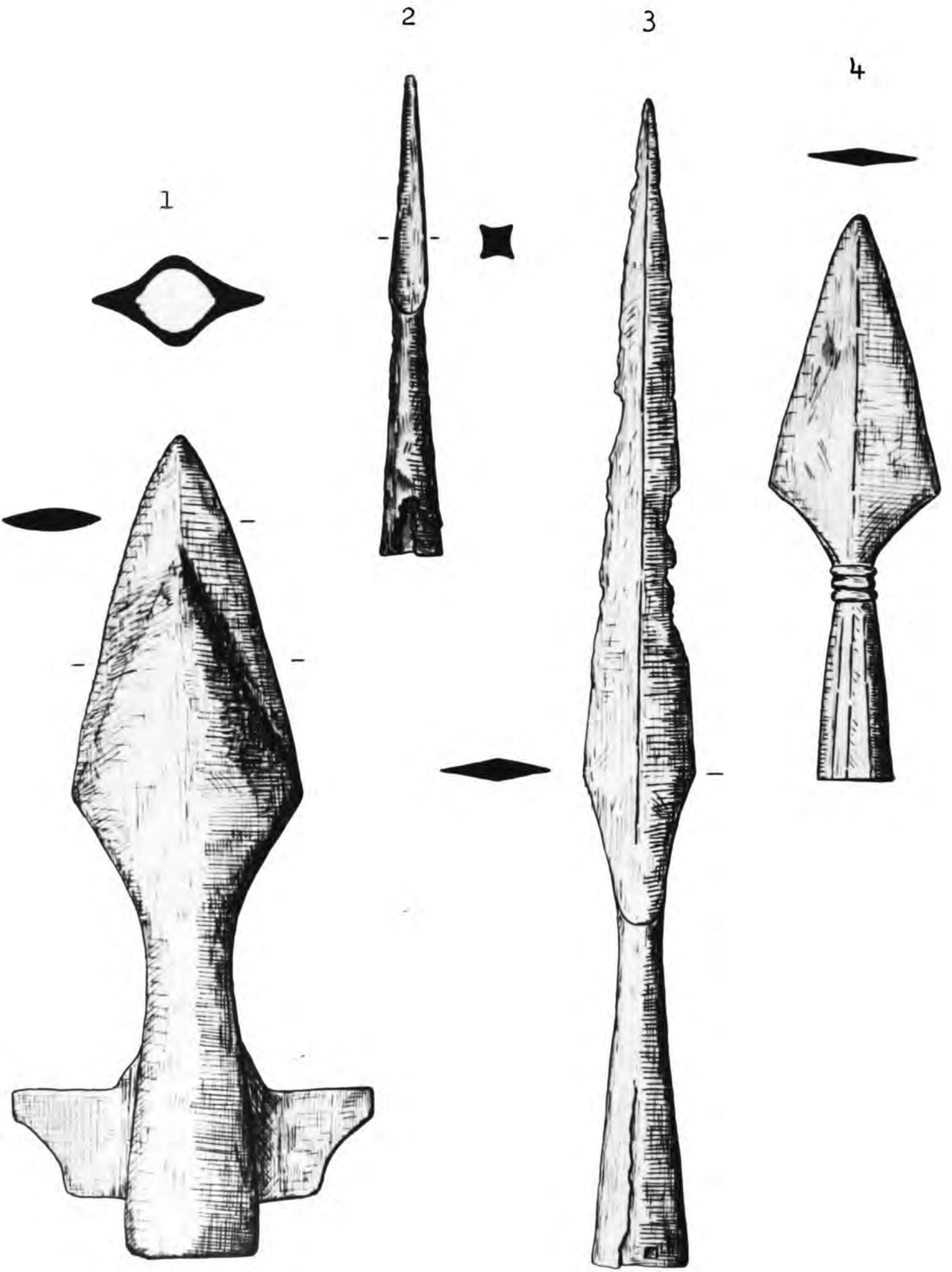
in the lugged T series, which seems to have had a long continental history before being introduced into England. Even so, the additional of lugs to the socket represents no more radical a departure than the functional addition of bolstering to the junction in the S series.

The question of general continental influence on English forms during the later period, must remain imponderable until further studies have been undertaken, and apart from one or two clearly recognisable imports, it is difficult enough to draw a clear line between Anglo-Saxon and Viking material of the later period. The traditional cleft/socket seems to have been generally retained for some time at least by Anglo-Saxon smiths, and then abandoned some time before the Conquest, and thus can provide in itself no rule of thumb attribution after, say, the beginning of the tenth century. But Scandinavian development, as illustrated by Petersen's types, cannot be read over into the Anglo-Saxon scene as an entity, influencing English forms as a result of Viking introduction. Not only, as we have seen, is the relationship of Scandinavia to the European continent unclear in this respect, but questions of influence and counter influence with Anglo-Saxon forms remain unanswered. Petersen's dates as we have already seen, are over restricted. He shows a general picture of predominately slender foliiform blades regular in Scandinavia during the eighth and ninth centuries, with

angular profiles appearing only late on the Viking scene, from the end of the ninth century; but it is in the north, if anywhere, that angular forms are historically indigenous. There is an awkward hiatus between the seventh and ninth centuries to be overcome by some means. And where is the origin of the bolstered angular blade of the eleventh century? It can only have been adopted, with the barbed gavelok, from insular sources during the later tenth century dominance of Scandinavian dynasties in England. Before this time, in the normal pattern of insular development, like that of groups S2-3, as with Viking art styles,[1] there is no apparent alien instrusion into English forms; but although changes are felt from this time onwards, the line of development of Anglo-Saxon spear-forms runs unbroken into early Medieval times.

1. Kendrick T.D. (1949) p.87.

Fig.100. Early Medieval Types of Spears.
(1) Northern France (St. Germain 4.6326). (2) Clough Castle.
(3) Fornham (bury L32).
(4) Aldersgate, London (gm 1,406).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(SECT. II "Perspective" CONTINUED:)

Earlier Medieval times. The line of development of the spear subsequent to the Anglo-Saxon period proper is difficult to establish with any certainly. Examples from archaeologically attested deposits are met with as infrequently as during the later Anglo-Saxon period, while well documented groups, like those in the Tower Armouries, date only from the fifteenth and sixteenth centuries. On the few actual examples that survive from the twelfth and thirteenth centuries, applied ornament seems never to have been used, although it occurs to provide valid chronological evidence from the fifteenth century onwards. The major source of evidence for earlier Medieval times, therefore, is from the now more abundant illuminated manuscripts, murals and funeral effigies, supported by a few literary references. The use of manuscript evidence remains, as we saw from discussion of later Anglo-Saxon types, fraught with difficulties, but with the introduction of more painterly Romanesque school styles, it is possible to place greater reliance on the more realistic, less conventional portrayal of weapons and armour than hitherto.

The employment of mounted soldiers in increasing numbers especially during the course of the twelfth century seems to have had an inevitable effect on the manner of the spear's use, and consequently upon its form, but for almost a century after the battle of Hastings the spearman of the Old English fyrd was to retain his decisive role in

medieval battle tactics; and in each of the five significant battles of the Anglo-Norman period, the vaunted cnihts were obliged to dismount and use their lances as hand spears from behind the traditional shield wall,[1] which implies a continuity of usage dependent upon a continuity in form to some extent. And it seems likely, as in other spheres of English culture, - language, literature, art or technology,[2] that the events of 1066 served little to disrupt the existing pattern, and that the significant dividing line, if there be one, to separate Anglo-Saxon from later Medieval times, is to be found at one remove some time in the twelfth century.

Frequently during the later eleventh and twelfth centuries the spear forms that we find illustrated in manuscript illumination or sculptural representation, seem more or less identical with those found in use during the later part of the Anglo-Saxon period. The drawings made to accompany Psalm LI in the Eadwine Psalter,[3] a manuscript of the Canterbury School of about 1150 A.D., differ little in convention from the spirited sketches produced in the same scriptorium over a century before, and the spear shapes illustrated here, as carried by the king's attendants, -

1. See section VI, p.617.
2. Chambers R.W. (1932) On the Continuity of English Prose; Kendrick T.D. (1949) Late Saxon and Viking Art. cap.13-14; Gardner A. (1951) English Medieval Sculpture. p.68; Moss A.A. (1954) "Niello"; Studs. in Cons. I, pp.49-62.
3. Trinity Coll. Camb. MS. R.17.I. fol.90v. Reproduced rather poorly by Rickert M. (1954), pl.72a.

simple foliiform blades with a line cross-bar below, or another apparently barbed, seem to share the same contemporary eleventh century convention with, for instance, the Bayeux Tapestry. The foliiform element seems soundly enough based on actual practice, but the cross bar, and more especially the barbs, at this time introduce an often more arbitrarily conventional factor.[1]

More realistically represented, the two major forms found depicted in manuscripts of the earlier Middle Ages correspond with the two wide groups of later Anglo-Saxon England: those with a simple narrow foliiform blade, and those with a broader based angular profile. The former are found during the earlier part of the twelfth century in the Albini Psalter,[2] or in larger numbers in the better known Bury Life of St. Edmund,[3] and from rather later, during the third quarter of the same century, in the Winchester Joshua Initial,[4] or another folio from Winchester illustrating scenes from the life of David.[5] After this time lengthier foliiform blades are found depicted only rarely,

1. See section IV p.387f; but cf. the probably eleventh century description of an anvil by Theophilus as, quasi duo cornua ab hastili procedentia (De Diversis Artibus, p.67)
2. Library of St. Godehard, Hildesheim, p.72; reproduced by Rickert M. (1954), pl.62a. Eg. the Beatus page.
3. The Pierpont Morgan Library, New York, MS. 736, fol.7v; reproduced by Rickert M. (1954), pl.66.
4. The Cathedral Library, Winchester; Bible fol.69; reproduced by Rickert M. (1954), pl.84b.
5. The Pierpont Morgan Library, New York, MS. 619; Reproduced by Rickert M. (1954), pl.86.

although the small broad button-like blade of the twelfth century knightly lance survives through the fourteenth century.[1] Certainly, if we may rely on the progressive rather than conservative taste of medieval illumination at this time, it seems probable the the slender lengthy foliiform blades of the later Anglo-Saxon series M, disappear from general use some time about the middle of the twelfth century or shortly after. Any one of the narrower shorter foliiform blades included in the classified lists, given welded socket and fairly stout section, like that from the Thames at Brentford (lm 0.2375) or at Windsor (read tcb. 189.62), might reasonably be ascribed to this early medieval period, therefore, but the only examples which any commentator has hitherto been bold enough to place within this period, are two from the Thames, at Beckton and the Tower.[2] As yet no archaeologically attested examples are available from this country, but Petersen cites a single unclassified piece from Gile, O/ Toten, (Kristian), - a slender blade on a lengthy closed socket, which was found associated with a sword of his late type Æ-Q, and which he states to have recognisably overlapped into the Middle Ages.[3]

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1. Schwietering J. (1912) Zur Geschichte von Speer und Schwert im 12 Jarhunderts, abb.4-7; and from the fourteenth century those held by the knights of Edward Crouchback's tomb in Westminster Abbey, (Tristram E.W. (1950) suppl.pl.7; or that held by the figure of Sir Robert Shurland in Minster Church (Kent)(Stothard C.A. (1817) Monumental Effigies, p.38).
2. Ward Perkins J.B. (1940) Medieval Catalogue p.74, pl.16(5-6)
3. Petersen J. (1919) p.35, fig.26.

Spear-heads with a lengthy angular profile, on the other hand, are found represented throughout the period and beyond in apparently increasing numbers, perhaps due to the demise of the foliiform group. In the earlier representations the later Anglo-Saxon feature of a baluster or knop at the junction seems occasionaly to have been retained, as in that held by Goliath in the Latin Bible MS Harley 2803, c.1170 A.D., or in the Winchester Bible leaf already mentioned,[1] while simpler angular bladed spears are held by the fleeing Philistines in the same folio. This knopped form of spear apparently survived in illumination until the end of the twelfth century, to which time might be attributed the warrior depiction of St. Theodore from a Romanesque School of the Upper Rhine.[2] Most typical, however, must have been the simple lengthy angular blade, like that from the site of the battle of Fornham (1173 A.D.)(fig.100(3),[3] with a closed welded socket and a single square nail hole punched through cold from either face. Later, during the thirteenth, and increasingly towards the fourteength century, simple angular forms remain, apparently shorter and with a proportionately increasing width, sometimes exaggeratedly so, as at the hands of the illustrator of the Luttrell Psalter,[4] dated to 1340 A.D., or shown held by the royal messenger

1. Reproduced by Hewitt J. (1855) fig.38; and see above, p.322.
2. Freiburg in Breisgau, Augustiner Museum; reproduced by Swarzenski H. (1951). Early Medieval Illumination.fig.7
3. Bury Mus. regs.L32.
4. BM Additional MS.42130;ed.Millar EG.(1932) The Luttrell Psalter,eg.fols.45,57v,82,91v.etc.

of the mid fourteenth century Smithfield Decretals.[1] Similar spears were depicted in the Judas Maccabeus murals of the Westminster Painted Chamber.[2] These seem to have taken the form, for the most part, of stout lozengiform blades on short sockets which extend into a firm midrib, in many instances, in the lower part of the blade. No doubt in practice the angle of the blade would have come lower than the artists schematically depict. Formally, this sort of spear-head is best represented by an example from the City Ditch at Aldersgate, London, (fig.100(4).[3] A note in the Guildhall Museum registers records that this was found below black mud levels of the ditch which might normally be ascribed to some time before the thirteenth century, but unfortunately the stratification at this part of the ditch has been considerably disturbed. Triple balustering at the junction, normally only found in later Anglo-Saxon spears with cleft sockets, places this piece well in the line of tradition of insular craftsmanship, although the stoutly facetted welded socket, together with a widely flared angular blade, demand a date at least as late as the end of the twelfth century.

The illuminator's convention of cross strokes at or near the socket continues to be found for some time after

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1. BM. Royal MS. 10E iv, fol.302v; reproduced by Rickert M. (1954), pl.132c.
2. Tristram E.W. (1950) p.570, pl.23.
3. gm.11,406.

the Conquest, the significance of which is assessed elsewhere,.[1] More importantly, realistic drawings of lugged spear-heads with both foliiform and low-based angular blades, continue over the same early period as those with knopped junctions, alos presumably representing a direct survival of later Anglo-Saxon types. They are found, however, only in the more elaborately conceived illustrations. It is found, for instance, in a twelfth century Psalter in the hands of the Goliath of MS. Harley 2,895,[2] or in the fiend's hands of the Canterbury School MS. of Trinity College Cambridge MS R.17.1.[3] Again, in continental Europe, St. Michael slays the Dragon piercing it through the mouth in the traditional pose, in a manuscript apparently from the Ghent scriptorium of about 1150 A.D.,[4] and at various places in the Hortus Deliciarum (1175-80 A.D.)[5]; and at the end of the same century the same type is seen held by a mounted saint in the Upper Rhenish St. Theodore manuscript.[6] Actual examples are recorded from various places in continental and Scandinavian Europe. From Northern France comes a singularly illustrative example physically, although unfortunately not dateable by association, where a form deriving from our group T has been

1. See section IV, pp.387-9.
2. BM. MS. Harley 2,895, fol.82v.
3. Fol.50; reproduced by Dodwell C.R. (1954), pl.27a.
4. Wolfenbüttel State Library, MS. Gud. lat. fol.1; reproduced by Swarzenski H. (1951), fig.8.
5. Reproduced by Schwietering J. (1912), abb. 8,10, 14,17.
6. See p.324 note 2.

patently modified to combat changing conditions; (fig.100(1).[1] A short, stout, almost lozengiform blade, with simple stepped lugs, has the most striking innovation in the nature of the blade's section, where a high broad midrib extends from the socket down three quarters of the length of the blade. But at the same time the construction of the whole remains light, with the obvious implication of a hollow midrib, the socket dowel extending into the blade in a manner, and with a result, which is reminiscent only of the earliest Hallsatt pieces from Tidavad. More traditional types continue to be produced within the Baltic area, dateable to some extent by the silver inlaid sockets, which continue in favour in the north-east for some time after they had ceased to be produced in western Europe. Examples from the Baltic area, which had already produced more exotic variants rather earlier,[2] include twelfth century pieces from Vesilahti and Pernio, (Finland),[3] the former of which exhibits thin spidery scroll-work in silver closely inlaid over the socket and curiously downward curving lugs,[4]

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1. The Museum of St. Germain-en-Laye regs.4.6326; and cf. another, N.P. unregs. rather longer, with simple lugs merely rounded on the underside, but otherwise identical.
2. For instance, lugs taking the form of a pierced cruciform accretion on the junction of the richly gold inlaid example from Klinte, Gotland, S.H.M. regs. 10194a; and cf. a similar but undecorated example from Eura, Finland, Kivikoski E. (1947), p.13 taf.104.
3. Kivikoski E. (1947). p.40 taf.144, 1110-1.
4. This style survives well into the twelfth century decorating weapons like swords and axes: (Nordman C.A. (1943) Vapnen in Nordens Forntid; Nordisk Kultur XIIB, pp.59-61, (figs.210-11.)

and the latter with plain but remarkably sharp upward curving lug points., An undecorated parallel to the former from Moisio is described by Nordman as a Swedish import of about 1100 A.D.[1] Ward-Perkins maintains that lugged spears, used essentially as weapons of the hunt, were in use throughout the Middle Ages, (a conception rejected elsewhere)[2] but he cites no later evidence than the eleventh century door-jambs at Brayton, (Yorkshire).[3] Generally in western Europe, it may be assumed, for want of further evidence, that this form survives only until the end of the twelfth century. The lug which Guillelmus Armoricus records as catching in the mail of Phillippe Auguste at Bouvines, (A.D.1214), and dragging him from his horse,[4] might have belong to any one of the more elaborate variety of pole arms which become common during the course of the thirteenth century.

This formal watershead some time about the end of the twelfth century must be accounted for by a change either in the generally prevailing conditions of warfare, or in some specific revolution in military tactics; and probably both. The more widespread use of chain mail, made increasingly more efficient with the inclusion of pieces of plate during the thirteenth century, naturally evoked

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1. Nordman C.A. (1931) Nordiske Ornamentik i Finlands Järnalder; Nordisk Kultur XXVII p.198, fig.32.
2. See section VI, pp.610-11.
3. Ward-Perkins J.B. (1940). p.73
4. "ab equo uncinis et lanceis gracilibus in terram ab equo provolverunt". Gesta Philippi Augusti, 191.

in course of time an effective response in the form of the spears obliged to combat such more elaborate defence. At about the same time the more general adoption of heavily armoured cavalry into the armies of western Europe resulted in the necessary abandonment of the flexibility possible with the troops of mounted infantry that we saw in action in the major battles of the twelfth century. By the time of the de Montfort Parliamentary battles, however, a more or less rigid division seems to have been established between heavily armoured cavalry and more lightly armoured foot soldiers; with the consequent abandonment of spear types which might be utilised comprehensively for all needs. This does not mean a lack of confrontation between them, but now specially devised weapons might be used to combat particular situations. The heavily armoured cavalryman, swiftly moving and less able to shift his position than hitherto, requires a small fixed-point lance head which might be couched or featured,[1] and stout enough to bear the entire impact at its tip.[2] The foot soldier needed weapons to oppose this new force, and at the same time was willing to adapt more elaborate forms to combat other men on foot.

1. See section VI, pp. 624 ff.
2. Only in the fifteenth century does the "classic"knightly lance appear: a tapered form with a narrowed handgrip near the butt end protected by a disc vamplate, (Oakeshott R.E. (1960), p.258). Before this, the simple spear-shaft of earlier times seems to have been retained, although with appropriately modified blades.

These requirements are achieved both by the modification of inherited forms, and the introduction of altogether new types. We have already observed that foliiform blades illustrated in manuscripts of the twelfth century are narrower and shorter for the most part, but more significant is the reintroduction of midribs into angular blades made shorter and stouter, parallel with that of the northern French lugged example. This is to be noted illustratively in the majority of late manuscript illuminations, like the fourteenth century Lytlington Missal,[1] or the Treatise of Walter de Milemete;[2] in painted glass in the clerestory of Tewkesbury Abbey, dated to about 1344 A.D.,[3] or rather later, the statue of St. George in Stockholm's Storkirke, which seems likely to belong to the fifteenth century. Two examples are recorded from London, one with a maker's mark on the blade.[4] This represents a reversal to a mode of construction neglected since the Roman Iron Age, and designed to provide a sharp point with the maximum support possible from a firm midrib and stout junction. The apparent hiatus in this constructional technique can only be accounted for by

1. Westminster Abbey Library. fol.157v; reproduced by Rickert M. (1954). pl.154.
2. Christ Church, Oxford, Library. MS. E 11 fol.68; reproduced by Rickert M. (1954). pl.133.
3. Rickert M. (1954) pl.145.
4. Ward Perkins J.B. (1940) p.74 pl.xvi 8-9

the casual effect of changing modes of warfare.

More graphically representing this same causative hiatus, is the sudden reintroduction after some seven centuries of the fourth Nydam type, our insular group A1, the simple quadrangular or triangular-section spike with a firm round socket. This, if any specific type can be, is to be identified with Thorolf's mail-piercer,[1] appropriate in both form and date, and although hardly impressive in itself, was perhaps distinguished by heroic usage in that particular case. This type, perhaps most suitable as a horseman's lance point, hardly lends itself to pictorial representation, and it is not apparently recognisable from manuscript illuminations. Fortunately, however, this type is better known than most, from archaeologically attested contexts. Several simple triangular-sectioned examples are recorded from the City of London,[2] while a quadrangular piece with concave faces is usefully ascribed to a thirteenth century occupational deposit at Clough Castle (Co. Down),[3] (fig.100(2); and another, rather larger and tanged, from a similar occupational deposit, dateable to the twelfth or earliest thirteenth century, from the motte and bailey castle at Hen Domen

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1. fjoðrin var tveggja álna long ok sleginn fram broddr ferstrendr, en upp var fjoðrin breið, falrinn bæði langr ok digr, skapit var eigi hæra en taka mátti hendi til fals ok furðuliga digrt; járnteinn var í falnum ok skaptit allt jarnvafit; þau spjot varu kollð brynþvarar.(Egilss. Skallagrímssonar, 53).
2. Ward Perkins J.B. (1940) p.74, pl.xvi(1-4).
3. Waterman D.M. (1954) Excavations at Clough Castle, Co. Down; Ulster J. of Arch. XVII, p.138, fig.11(15).

(Montgomerys.).[1] Another example from the site of Bury St. Edmunds Abbey, but not clearly dated, has concave faces to the quadrangular blade section sufficiently pronounced to form a typological throw-back to the Nydam type with a high midrib and narrow blade pieces of more or less equal proportions.[2]

Of the large number of pole-arms which are apparently developed during the course of the thirteenth century, and variously named: godendac, croc, faussal, pikte, or guisarme, for instance, none have adequate contemporary descriptions, and the names have been more or less arbitrarily or uncritically employed by modern commentators on the Middle Ages. The exact genesis of these forms which appear so suddenly in manuscript illumination of the thirteenth and fourteenth centuries, is likely to remain obscure until a more extensive survey of staff-weapons of this period can be undertaken comparable with Buttin's important study of the knightly lance,[3] but it seems probable, a priori, that they represent less a totally new innovation, than an extension or modification of the twelfth century lugged variety, perhaps merged with some elements of the Danish axe. It has been suggested that

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1. Information from Mr. P.A. Barker;
2. Bury St. Edmunds Museum, regs.L33.
3. Buttin F. (1965) La lance et l'arrêt de cuirasse; Archaeologia CII, pp.77-178. A brief introduction to Scandinavian evidence is provided by Grieg S. (1943) Hugg og Støtvåpen fra Middelalderen; Nordisk Kultur XII B, pp.90-133, espec.figs.68-77.

the bylle was merely adopted in the process of using agricultural implements ad hoc as weapons of war;[1] but although this may have been the case, there is some evidence to point to the concurrent development of this tool as a staff-weapon from at least some time in the seventh century. The earlier thirteenth century example represented on the wall of the Westminster Palace Painted Chamber,[2] or rather later in the Treatise of Walter de Milmete,[3] differs little, save in the extent of the haft, from that with clearly horticultural functions, shown in use in the later Anglo-Saxon manuscript BM Julius AIV, or those which curiously seem to have replaced the spear in probably seventh century Merovingian warrior burials at Breny[4] or Royaumieux.[5]

The resulting forms from the fifteenth century are found in the elaborate partisans and halberds for which specialist use, complex manuals were to be published[6] comparable with parallel text-books written in the following century for the use of the lighter armoured cavalry which succeeded the extravagantly plated fifteenth century knight.

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1. Ward Perkins J.B. (1940) pp.75-6.
2. Now destroyed, but cf. Laking G.F. (1920-22) European Armour and Arms, II, fig.907.
3. Christ Church Oxford, Library. MS E.11, fol;68; reproduced by Rickert M. (1954), pl.133.
4. Grave 1123; with an oval garnet set buckle loop and a rectangular shield to the tongue. (St. Germain-en-Laye Museum).
5. With a barbed dart, pottery vessel and iron "truss" (Nancy Museum, unregs.)
6. See p. 580, note 1.

IV. COMPOSITION

Dark Age technical processes have hitherto engaged only scant attention, and in particular a general introduction to Anglo-Saxon black-smithing based upon the examination of particular pieces remains to be published,[1] although a useful if elementary survey of Merovingian material, arbitrarily based on pieces available in the Museum at Nancy (Lorraine) is found in the work of Salin and France-Lanord.[2] Particular aspects of the subject, like inlaying and pattern-welding, have already begun to be studied,[3] and more recently Johannsen has included an important chapter on Medieval working techniques;[4] but a thorough basic survey of the kind envisaged will require technological resources not presently available for archaeological research, together with a greater willingness on the part of museum authorities to allow selected pieces to be thoroughly examined, which as France-Lanord has shown, need not necessarily detract from the objects as show pieces. In the meantime, as outlined in the introduction, the

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1. The subject is approached, en passant, and from the point of view of a scientific metallurgist, in, for instance, two excellent general volumes: Coghlan H.H. (1956) Notes on Pre-historic and early iron in the Old World: Tylecote R.F. (1962) Metallurgy in Archaeology, pp.260-281.
2. Salin E. and France-Lanord A. (1943), Le Fer à L'Époque Mérovingienne; the analytical aspects of which are enlarged by France-Lanord, in volume III of Salin E. (1949) La Civilisation Mérovingienne, pp.5-115.
3. See pp. 21-3 ; and cf. Holmqvist W. (1951) Tauschierte Metallarbeiten des Nordens.
4. Johannsen O. (1953) Geschichte des Eisens.

physical extent and chronological range of the Anglo-Saxon spear constitutes a convenient index to the progressive techniques and art of the Old English weapon-smith.

Sources: location of the ores. Conditions of iron-working in the continental homelands prior to, or more significantly at, the time of the Migrations, are obscure, Tacitus states of the first century Germani, that:

> Ne ferrum quidem superest, sicut ex genere telorum colligitur. Rari gladiis aut maioribus lanceis utuntur.
>
> (Germania 6)[1]

and implies elsewhere that the actual production of iron was to be considered an unworthy or menial occupation; in that:

> Cotini, quo magis pudeat, et ferrum effodiunt.
>
> (Germania 43)

a reference strangely at odds with the generally attested heroic ethos of the Germanic smith.[2] Easily mined ores are found in large parts of north and western Europe, however, and there is no reason to credit Tacitus with

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1. And cf. his description of their praeusta aut brevia tela (Annals II, 14). Bone-headed and simple wooden darts were found at Hjortspring, and apparently continued in use at least until 400 A.D., when they are found on the domestic site at Sjonghelleren (Møre), (Oslo Mus. regs. C.21834) Much later we hear of fire-hardened wooden stakes being used to defend the monastery of St. Gall, in 926 A.D. (See section V, p.510.)
2. Tacitus is largely concerned in Germania merely to note certain distinguishing features of each of the tribes within the Germanic congress, and it is hardly likely that the subject or tributory Bohemian Cotini were the only iron producing group. Probably this is Tacitus's own evaluation of shame, mining being reserved within the Empire, for slave or convicted labour. Of course the practise of smithing is rather different from mining, although in Germanic mythology some figures like the sons of Ivaldi engage in both.

anything here other than a powerful elaboration of the general theme virtus frugalis. Whatever effective system for the production of iron that there may have been beyond the limes, however, must have been considerably disturbed from the time of the first folk-wanderings, while raids resulting in the settlement of Roman Britain will inevitably have brought disruption of, or at least temporary severance from, the existing economic pattern.

By the first century A.D., according to Strabo,[1] iron was already considered an important British product, and with the first years of Roman rule, systematic exploitation under Imperial direction resulted in large scale efficient iron production, most notably from Wealden deposits and the forest of Dean, but extensively elsewhere too, along the Jurassic ridges and up to and beyond the Wall.[2] The actual methods of working have been closely studied in the third century mine at Lydney on the southern edge of the Forest of Dean,[3] while concentrations of smelting works have provided useful evidence at Ariconium (Weston under Penyard, Herefords.),[4] and in the far north at

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1. Geographica IV 5(2).
2. Davies O. (1935) Roman Mines in Europe, pp.163-4; and cf. Collingwood R.G. and Myres J.N.L. (1936) Roman Britain and the English Settlements, pp.233-4.
3. Wheeler R.E.M. and T.V. (1932) Excavation of a Prehistoric Roman and post-Roman site at Lydney Park, Glos., pp.18-22.
4. Jack, G.H. (1924) Excavations on the site of Ariconium; Trans. Woolhope N.H. and F.C. 1924, pp.26-31.

Lanchester or Corbridge,[1] where production must have provided for some of the needs of the Wall garrison. Recognisably named master cutlers seem to have established works in London,[2] but in general very little is known of the management of iron production at source in Roman times. It seems likely, however, that the gradual withdrawal of military demand during the course of the fourth century will have resulted in the decay of a not inconsiderable part of the industry. At the same time, the rather less important domestic market will have been kept open, and it is probable that the independent forest labourers, who seem to have produced at least part of the iron under the Empire,[3] survived in their employment well into the period of Anglo-Saxon settlement. The Romans appear to have introduced no new technical processes of smelting or smithing to the already skilfull Celtic craftsman, and the remark of Gildas, that on departure the Romans:

> fortia formidoloso populo monita tradunt, exemplaria instituendorum armorum relinguunt.
>
> (De Excido para.18)

is not likely to have had any real significance as far as iron working was concerned, where a clear line of technical continuity is to be traced.

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1. An important study of the well known Corbridge bloom, made compositely, probably from local black-band carboniferous ores, is dealt with by Louis H. (1910) Metallurgical Notes; Arch.Al. 3rd S. VI, pp.265-7; Birley E.B. (1958) pp.57-8
2. Collingwood R.G. and Myres J.N.L. (1936) p.234.
3. Davies O. (1935) p.6.

Fig.101. Iron-working centres at the time of the Domesday/Boldon Book surveys.

(Available iron bearing measures: ▨)

An examination of the various natures of ores available to the Anglo-Saxons at the different stages of settlement is is useful to an assessment of potential extent and quality of iron-work, and weapons in particular, produced by smiths during the subsequent centuries of the Anglo-Saxon period. Some ores are more easily reduced than others; some are valuable for the production of weapons or edge tools only at the instance of specialised treatments; some were no doubt made available to the Anglo-Saxon smith during the earliest phase of settlement, while others are only likely to have been exploited much later in the period.

British ores conveniently fall into three major groups:[1] Carbonate ores, found as nodules within the Wealden geological series and the coal measures, and as sedimentary deposits along the line of the Jurassic escarpment from the Cleveland Hills down into the Oxford Lias. From these often relatively high phosphorus or manganese content blooms are produced, irreducible for the most part in medieval times, and over brittle for use in quality weapon smithing; although on the other hand, a small to average phophorus content results in a useful hardening which might be employed at need in lieu of deliberative

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1. The most useful descriptive analysis of British ores available to the layman, is probably that by Percy J. (1864) Metallurgy: Iron and Steel, pp.197-236

carburisation. Equally important are Limonite or "brown Haematite" ores, a kind of hydrated iron oxide. Easily reduced, and with a high metallic content often reaching over 50%, non-phosphoric and almost free from any other kind of impurities, limonite ores form perhaps the most valuable source of high quality blooms at any time in Medieval England. These are found normally in outcrop coal measures of the north-east or south-west. The one remaining significant group of English ores, is the deposits of rich anhydrous "red Haematites" of Cumberland and north-west Lancashire. These are almost free from any undesirable impurities of sulphur or phosphorus, but are relatively difficult to mine.

Kent and Sussex The Wealden industry of Roman times seems to have rivalled even the Forest of Dean in the output of iron blooms, and it is curious that the period of Anglo-Saxon settlement should witness, if not a complete abandonment, then at least a considerable decay, of production from this region. Of the large number of hearths and slag-heaps in this area, none has been dated to any time in the Anglo-Saxon period, and documentary evidence is minimal. Rather further to the east than the areas of Roman development, a charter of Oswy, king of Kent, granting land to Adrian, abbot of St. Peter's at Canterbury, in 689 A.D., records:

unum aratrum, in quo mina ferri haberi cognoscitur,

quod pertinebat ad cortem quae appellatur Liminge.

(Cod.Dip. I 30)

This might either refer to some form of horizontal shafting into carbonate deposits within the anticlinal Wealden structure, or alternatively to local pits in the Lenham Beds, but by the time of the Domesday survey no record remains of any kind of iron-working in Kent. And within the whole Wealden area Domesday Book mentions just a single ferraria near East Grinstead in Sussex, with the possibility of another, further to the west at Stratfield Turgis (Hants.)(fig.101).

Wessex. Presumably the nascent kingdom of the West Saxons will have obtained somepart of their bulk metals either from the south-eastern kingdoms, or from the established mines of Middle Anglia, but Fieldhouse, on the admittedly small evidence of slags, considers that the Roman bloomery at Tiddington may have survived in operation until shortly after the middle of the sixth century,[1] while there is no reason to believe that the continuous exploitation of south-western limonites need have been disturbed before about the same time when the battle of Deorham (577 A.D.) marks the general absorption of the south-western marches into the Saxon sphere. It

1. Fieldhouse, J.W. (1931) A Romano-British settlement near Tiddington, p.8 ff; Accepted by Schubert H.R. (1957) History of the British Iron and Steel Industry, p.91; but of course the rather dubious evidence of slags in nearby graves might just as easily be accounted for by the process of cremation.

is from this time that the rich and plentiful limonites of the Forest of Dean, exploited by the Hwicce no doubt, become immediately available to Saxon artificers. Containing up to 58% metallic content, and virtually free from impurities of any kind, these ores had apparently been worked since before Roman time around the hill-fort at Lydney, for instance, and into the extension of the field to the south in Somerset. At least by the early eighth century the smithies of the west seem to have established a thriving industry, and the prosperous iron-workers of Alcester, for instance, are recorded to have been so engrossed in their profitable trade as to foolishly harden their hearts to the warnings of St. Ecgwin.[1] From this time onwards not even Danish depredations seem to have been felt very deeply in the south-west, and a fairly lengthy period of more or less undisturbed development, stimulated even further by the loss of Jurassic and Northumbrian workings to Danelaw, resulted in a considerable expansion of activity. By the end of the Anglo-Saxon period the apparently unparalleled prosperity of this area is reflected in the rate of feudal rents that the Domesday survey records from alarge number of established centres. Gloucester in the time of Edward the Confessor is recorded to have provided:

> xxxvi dicres ferri et c virgas ferreas ductiles ad clavos naviu regis.
>
> (DB.I 162a).

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1. Chronicon Abbatiae de Evesham, p.26.

that is, some 360 blooms estimated in groups of ten; and from Pucklechurch, some 90 more (DB.I 165a). From further south, a bloom is required from every freeman of communities like Bickenhall, Seaborough or South Pesherton in Somerset, (DB. I 86-92).

Middle Anglia and Mercia. Areas of early settlement along the east coast: the kingdoms of Essex and East Anglia, finding no ores immediately to hand, must have had recourse instead to material from the Jurassic ridges further inland. There, carbonate ores exploited in Roman times, as in the later Medieval period, lie diagonally from north Oxfordshire, through Northampton and Lincolnshire to the Humber, to outcrop again further north in the Cleveland Hills of Deira. And small quantities of limonite are found too, just north of Hunsby in Northamptonshire. By the time of the Domesday survey, a long series of iron-working centres is scattered along this line, from Corby, Gretton, Norton and Towcester in Northamptonshire, to Stow-in-Well, Castle Bytham and Little Bytham in Lincolnshire, (fig.101). Probably many more were engaged in production before the northern harrying which resulted from Tostig's rising of 1065 A.D.[1]

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1. Anglo-Saxon Chronicle, D and E, sub anno 1065; Domesday Book adds for the Forest of Rockingham, that in respect of woods and iron-workings, the manors of Gretton and Corby are "lacking in many things"; while at Towcester, the rents of the smiths (fabri) are no longer paid, (DB.I 219(b).

Northumbria Weardale limonites seem to have been smelted in prehistoric and Roman times,[1] and despite the almost inevitable decay of production which must have resulted from the abandonment of the Wall and the decline of military demand, there is no evidence that this region was early absorbed by Anglo-Saxon settlers, and the workings probably remained undisturbed in native hands. By the eighth century, however, there is good evidence that Northumbrian redevelopment in this area had achieved a not inconsiderable repute. In about 735 A.D. a certain Ingalice, priest of Wearmouth and Jarrow, writes to Mainz covering a gift: quattuor cultellos nostra consuetudine factos; while in 764 A.D. the abbot Guthberht writes to his co-patriot Lullus, now bishop of Mainz, recalling: cultellos videlicet xx et gunnam de pellibus lutrarum factam, which had been taken as presents by one Hunvinus six years earlier, and requesting that a glass worker should be sent in return from Mainz.[3] Perhaps the first gift recorded stimulated a request for more. Certainly, the inclusion of ironwork with such British speciality gifts as: furs, embroidered vestments and illuminated manuscripts, seems significant. These Northumbrian knives must surely have been of especially high quality to have been so much

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1. Birley E.B. (1958) pp.57-8.
2. ed. Jaffé P. (1866) Monumenta Moguntina: Epistola 77, p.216.
3. Ibidem, Epistola 134, p.301.

appreciated in Mainz, which itself had been a famous centre for cutlery since Roman times. The discovery of very English looking angular seaxes in certain south German graves from the end of the eighth century at Strasskirchen and Goddelsheim, gives rise to interesting speculation.[1] No doubt here, as elsewhere in the north, Viking depredations will have caused some temporary disturbance to the economic pattern of industry developed under monastic management during the Golden Age of Northumbria, but with the establishment of the Viking kingdoms of the north, a renewed and perhaps even increased demand is likely to have developed.[2] The Domesday survey of 1086 A.D. takes no account of St. Cuthbert's Land, but a viable substitute in this respect is provided by the Boldon Book,[3] a rental of Durham Cathedral estates compiled under Pudsey, less than a century later, which records considerable iron-working activity in such centres as: Tunstall, Wearmouth, Escombe, South Sherburn, Stockton, Sedgefield or Rookhope in

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1. Reinecke P. (1936), Karolingische Keramik aus dem östlichen Bayern; Germania XX, p.200, taf.42(1,3); Nass K. (1938), Karolingische Reihengräberfelder aus Hessen; Germania XXII, p.44, taf.11(13).
2. The only two iron-workers hoards known from the AS period, come from this late period in Northumbria: Crayke: (Sheppard T. (1941) Metal objects made by the Vikings; Hull Mus. Pubs. no.212, p.283); and Hurbuck: (Hodges C.C. (1905) p.214, plate opposite). The latter containing what appears to be a miner's pick.
3. ed. Greenwell W. (1852), Surtees Society XXV. It is important to remember that this is a rental, however, and not the Domesday's descriptionem totius Angliae.

Weardale. As in the Domesday Book, the distinction between "smith" and "bloomsmith" is blurred, but from such references as that at Sedgefield: quidam carbonarius ..... invenit carbones ad ferramenta,[1] it seems likely that in areas of actual iron production at least, an overlapping of activity of this kind, perhaps in centralised hands under the directive of an ecclesiastical baillif, represents the norm.[2] The later Old English exploitation of iron-ores in County Durham must have been sufficiently well established to have survived the political disturbances which resulted in the death of Bishop Walcher, and the consequent harrying that continued into the end of the eleventh century. Certainly by the beginning of the thirteenth century the sale of Durham blooms, figured in Pipe Roll accounts, is known as far away as Portsmouth and Ireland.[3] It seems highly probable therefore that high quality blooms were being produced from County Durham during the greater part of the Anglo-Saxon period.

With the expansion of the kingdom of Northumbria to the west, the rich "red Haematites" of Cumberland and north-west Lancashire would have become available, but

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1. Ibidem, p.25.
2. Cf. the Register of Worcester Priory (1240 A.D.): "N... facit ferra carrucarem et prior invenient ei ferrum et carbonem, vel ii solidos pro carbone." p.56a. Similarly, there is no specific mention of bloomsmithies in Northants., but it is inconcievable that the large number of forges should not have been using local materials.
3. John 1211 A.D. Roll 4, memb.1; John 1213 A.D. Roll 5, memb.2; (ed. Greenwell W. (1852) pp.xviii, xxii).

there is no clear evidence of their having been mined earlier than the late Middle Ages, although easily accessible deposits occur as weathered outcrops in the Furness peninsula. Perhaps here the place name Orgrave (OE. ora græf "ore pit") is indicative of early iron mining,[1] but no survey for this area comparable with Domesday Book exists, as for County Durham, and workings may well have been extensive. But in any case, Anglo-Saxon exploitation of this source will not have had long to develop before either disturbance or appropriation by Norse settlement in the first quarter of the tenth century. Much further north, and really out of the sphere of Anglo-Saxon influence, porous bog-ores as in Hedemark and Ireland, but with a less easily reduced clay content, seem to have been worked continuously throughout the period as at Fersit in Inverness, or at Bonnybridge near the Antonine Wall.[2]

The majority of British ore deposits have surface outcrops, so that a form of open-cast grubbing, rather than deep mining, seems likely to have been employed during at least the earlier stages of Medieval production.[3] But

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1. Eckwall E. (1922) The Place Names of Lancashire, p.207; Barnes F. (1951) Barrow and District, pp.13-4.
2. Ritchie J. (1942) The Lake-dwelling or Crannog in Eardarloch; PSAS. LXXVI, p.60; Smith S. (1934) An artificial mound at Bonnybridge; PSAS. LXVIII, p.67.
3. The Domesday survey remarks only one mine, at Roeland (Rhuddlan) in Cheshire (DB.I 296a), although in the seventh century another had been recorded at Lyminge in Kent, where the local geological structure would have demanded horizontal shafting (See above, p. 340.) Rather later, during the twelfth century, Giraldus Cambrensis mentions that the mines of the Forest of Dean provided Gloucester as liberally with iron, as with venison: (Itinerarium Kambriae, I, 5.)

of greater significance than the nature of Anglo-Saxon mining, which will in all probability remain obscure, are the techniques of reduction to provide the smith's bloom, upon which the ultimate quality of the weapon made will have depended, at least equally with the skill of the individual smith.

The subject of Dark Age smelting or bloomsmithing, however, is almost as obscure as that of mining, although less likely to remain so with future analyses of both slags and finished products.[1] A wide series of control specimens will have to be obtained, however, before useful conclusions as to any particular piece can be made. At the present day, apart from a single possible site at Pakenham in Suffolk, yeilding some traces of slag and hearths,[2] no remains of attestedly Anglo-Saxon period furnaces have yet been discovered, although they must exist in large numbers in appropriate areas. We are still obliged to rely on contemporary remains from the Celtic regions which have hitherto provided much more adequate material of a domestic nature. There is no reason to

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1. Current chemical analyses of either slags or finished products, will only become of value in indicating the sources of raw material used, when an adequate series of referents exist for trace impurities in British ores. This, therefore, potentially of the utmost value, must remain as a long term project.
2. Brown B.J. (1954), Excavations at Grimstone End, Pakenham; Proc.Suff.Inst.Arch. XXVI, p.199. Slags from Saxo-Norman sites at York, Kirkstall Abbey (yorks.) and Great Casterton (Rutlands.), are dealt with summarily by Tylecote R.F. (1962), pp.265-6, table 85. Tylecote's remarks on second century hammerscales shows future possibilities (1962) cp.254, pl.xxvi.

believe, however, that such Celtic methods of production will have differed in any detail from Anglo-Saxon methods, or in fact that there was any change in the basic processes between Roman and Medieval periods.[1] Sixth and seventh century sites in County Cork, at Ballyvourney and Ballycatteen, have provided a large number of complete and fragmentary bowl bottoms together with slag residues,[2] indicative of the sort of furnaces, and therefore smelting techniques, employed in Roman times, and surviving well into the Middle Ages. Reduction of this kind in Ireland will most probably have been carried out with prepared charcoal, but as we have seen there is adequate evidence for the use of coal in Anglo-Saxon bloomeries, which in many cases might well have been mined as a by product of ores. Either, however, may have been introduced into the body of material, presumably at first by chance and later perhaps deliberately, to produce the steely cementite portions characteristic of some early blooms. The date at which actual awareness of the possibilities of "steeling" of this kind came about is not clear, but is likely to have occured at least by the eleventh century. High phosphorus contents most characteristic of Jurassic

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1. A useful survey of known smelting sites dating until the end of the Roman period is provided by: Penniman T.K. et al. (1959) Ancient metallurgical furnaces in Great Britain to the end of the Roman occupation; Sibrium IV pp.97-126.
2. O'Kelly M.J. (1952) St. Gobnet's House, Ballyvourney; J. Cork Hist.Arch.Soc. LVII, p.18ff, fig.3; O-Riordain S.P. and Harnett P.J. (1943). The Excavation of Ballycatteen Fort, Co. Cork; Proc.Roy.Irish Acad.XLIXc.pp.30-40.

and Wealden deposits, remain irreducible until after the Middle Ages. Whether, during the later part of the Anglo-Saxon period, bloomsmithing was or was not to a greater degree deliberative than at the beginning, a distinct choice seems to have been possible among all of the produced material. The rods which Gloucester was required to provide Edward the Confessor, are closely specified as soft wrought metal suitable for a particular purpose:

c virgas ferreas ductiles ad clavos navium regis,

and the general abandonment of pattern-welding techniques by the end of the tenth century, suggests the availability of superior materials, which can only indicate the sort of new more homogeneous "steel" employed by such master weapon-smiths of the tenth century as Ulfberht or Ingelri.[1]

The purpose of early Medieval smelting of this kind seems not to have been to liquify the metallic content of the ores to such an extent as to be able to tap off the slags in their entirety, but rather merely to produce blooms of impure soft iron, which could then be subsequently structured and purified to some extent by a lengthy process of hand forging. The resulting bloom is thus composed of a sort of crude wrought iron quite unlike modern cast metal, which we find first being used for fine vessels, only much later at the end of the Medieval

1. Tylecote R.F. (1962) p.275.

period. Even so, the processes involved require a considerable amount of delicacy on the part of the bloomsmith, as is implied by the description of the Sons of Ivaldi when preparing the iron for Thor's hammer and the spear Gungnir of Odin:

> Þa lagði jarn i aflinn ok bað hann blasa ok sagði at onytt myndi verða, eff blastrin felli.
>
> (Skaldskparmal, 35).

The size of the bloom produced thus in the bowl of the hearth, and subsequently shaped into billet forms, will have been limited by the weight of the bloomsmith's hammer. Too large a bloom would have resulted in poor internal structuring, as it would have been impossible to forge out solid impurities too far below the surface of the billet. Occasionally a large composite bloom might have been made up out of small pieces, as with the Roman example from Corbridge, weighing some 340 pounds,[1] or alternatively, if a larger final product was required, separate small blooms might be piled together, to form a composite whole, like one of the early Llyn Cerrig "currency bars", which is made up from three separate pieces.[2]

The single bloom known to date from the Anglo-Saxon period: that from the late Crayke iron-worker's hoard,[3] is probably quite representative of material being prod-

1. Coghlann H.H. (1956) p.154.
2. Fox C. (1945) p.65, no.61, pl.xvi.
3. Sheppard T. (1941) p.283.

uced at this time. The mass is made up of layers of pure soft iron alternating with a "steel" of up to a maximum of .4% carbon. These areas are interspersed with lines of cinder and slag disposed in streaks by forging-out. It is this foliated or laminated structure, although considerably forged out further, which is represented so clearly in the spear-heads, as in other iron work of Anglo-Saxon times.

The bloomsmith's product seems to have been regularly knocked out into suitably patterned billets for storage or transportation from the ore fields. The normal form of these billets in continental Europe throughout prehistoric times, was an elongated square-sectioned block, stout in the middle and pointed either end;[1] but other forms appear to have been made in England and Scandinavia, which perhaps approximate more nearly to initial-working, or "roughout" forms. The iron "currency bars" characteristic of La Tène Britain have been identified by Childe with Caesar's taleae ferreae,[2] but although they must probably have had some monetary significance in an iron-conscious community,[3] their distribution defines, as Childe remarked, an economic system rather than a political unit;

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1. France-Lanord A. (1963) Les lingots de fer protohistorique; Rev. d'Hist. de la Sidérurgie IV, pp.167-78. And cf. others from Sauggart and Weisselberg; (Stuttgart Museum Regs. A719).
2. Childe V.G. (1940) Prehistoric Communities of the British Isles p.240, fig.94.
3. Cf. The piles found in the "treasuries" of the palace of Sargon II at Khorsabad; France-Lanord (1963) Loc.cit.

and they seem likely to have to have had their origin as convenient rough-out billets for the dominantly conquering Marnian sword. In Scandinavia, the burgeoning eighth century iron workings of north and eastern Norway gave rise to a similar series of billets. To the north in Trondelag, a stout wedge-like axe or plough-share shape conforms closely with Swedish groups,[1] which at a further stage, forms the unedged axe stock from Gjerrild (Jutland).[2] To the south and east in Telemark-Hedemark, a larger number of complete billet stocks are known, individually taking the form of a stout rod, one end hammered thinly spatulate, the other pierced with an eye so that a number might be threaded together.[3] Where found in groups, they seem to be uniform in size made up into regular stocks, perhaps best understood as suitably sized rough-outs for the forging of, for instance, axes, spears or arrow-heads, in order of size and weight.[4]

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1. Petersen J. (1951) Vikingetidens Redskaper, pp.116-8, fig. 81.
2. Arbman H. (1961) The Vikings, pp.48, 93, pl.11
3. Petersen J. (1951) pp.114-6.
4. Particularly large pieces are found in the hoard from Kjøsted (Hedemark)(Oslo Museum regs. C21947); while smaller in bulk though longer and more elegantly made, are those from Hov (Oslo Mus. regs. C27854); and the smallest in size, from Ulnes (Valdres)(Oslo Mus.regs. C20608).

Excursus: the status of the Old English Smith

Discursive consideration of the nature of the smith as an individual, and of what might be inferred of the management of the smithy, as well as the actual technical processes of forging employed, helps to throw light on the development of weapon production throughout the Anglo-Saxon period.

The withdrawal of military demand at the end of the period of Roman occupation, and the inevitable lapse of centralised direction which this demanded, will have meant the general abandonment of large scale organisation in iron-production and iron working, save perhaps in those areas where the economy might have temporarily survived in a Celtic market. Whereas we know from the examination of actual products that no knowledge of specific technical processes seems to have been lost with the departure of Roman military artificers, the entire management of production will inevitably have altered to suit new social conditions. And the disjected communalism of Anglo-Saxon settlement demanded a fragmented economy.

In most relatively primitive communities the smith's craft, restricted to a single and consequently powerful individual, and approachable only through some means of apprenticeship, naturally invokes its own aura of mystique. The arts of production,(dealt with summarily later) are all of them essentially pragmatic; of which the smith himself

knew how, but not why. It is in this sophisticated distinction, that the secret of the primitive herbalist, wizard, or smith, lies. This mystique will inevitably be broken up with the gradual development of a more mobile society, and the co-operative workmanship that a greater degree of centralised industrialisation brings towards the end of the period. In the mean-time the village black-smith, providing by his skills the tools with which to sustain life and the weapons with which life might be defended, remained a powerful symbol of heroic dominance within Germanic society. The magico-religious attributes of the long line of smith god-heroes stemming from Tubal Cain and running through Hephaestus to the sons of Ivaldi, who provided Odin with the spear Gungnir,[1] and Weland himself, have a host of comparable ethnological cult analogues in contemporary societies.[2] Throughout Europe during earlier medieval times, there is evidence for smith-cult elements having survived from some more primitive time. The magician-smith commonly plays a significant

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1. Skaldskparmal, 35.
2. See generally Forbes R.J. (1950) Metallurgy in Antiquity, cap.iv, "the evolution of the smith, his social and sacred status". And cf. Lobins F.W. (1953) The Smith, tradition and lore, pp.20, 25, 40. With regard to the sexual implications raised by these authors, it is interesting to compare Saxo's distinction between the virutous and heroic black-smith and the libidinous gold-smith adulterer (Gesta Danorum VI, 158).

part in Irish legend,[1] like Goibhnean who was capable of making a sword or spear with just three blows of his hammer, and who endued his "sons" among the smiths of mankind with special prowess, like that Lugh who is reported to have forged a spear capable of slaying unaided by any human hand.[2] Other smith-gods appear as the Almarinen of the Baltic, but as with the Old English Weland, to whom Beowulfs byrnie is attributed, like Waldere's word Miming,[3] they are moreoften embedded merely as elements in popular story sequences when we hear of them, rather than actual objects of fear in themselves.

Despite the lack of any record of a Promethean gift of the art, like Odin's introduction of the secret runes, the Elder Edda attests a divine origin for the smith's art when:-

> Hittuz æsir a Iðavelli
> ðeir er horg oc hof ha timbroðo;
> afla logðd auð smiðoðo,
> tangir scopo oc tol gorðo.
>
> (Voluspo, 7)

St. Patrick is described on one occasion praying to be protected from the incantations of "women, druids and smiths",[4] while the close relationship between the smith and the weapons of death he produces, like the Norn witches,

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1. Rees A. and B. (1961) Celtic Heritage, pp.252-3, 257
2. Ibidem, pp.36-7.
3. Beowulf, 453-5; Waldere I, 2-4. And cf. Alfred's Boethius, De Consolatione Philosophiae, cap.19, or the Franks Casket (fig.102(1).
4. Faeth Fiadha, p.6.

is implicit in the Leechdom's: Syx smiðdas sætan / wælspera worhtan .... isernes dæl / hægtessan geweorc.[1]

Despite the misgivings of St. Patrick, however, the English smith had always been considered a modcræftig man,[2] and perhaps influenced by such sentiments as that of Aldhelm:

> incudis commoditas seu rigida tudentis mallei
> durities vel rubiginosae forcipis
>
> (De Virginitate, p.237(2)

Anglo-Saxon monasteries seem fully to have recognised both the economic necessity and the therapeutic value of black-smithing of all the manual arts.[3] Bede speaks of the leading ecclesiastic Eosterwine, cousin and successor of Benedict Biscop, as: ferrum malleo domando,[4] and during the abbacy of Huætbert in the first half of the eighth century, the monks of Jarrow and Wearmouth seem to have been noted for their bell-founding and metalwork in general.[5] Æthelwulf, writing in the early ninth century, mentions another monk, one Cuicuin belonging probably to a cell of Lindisfarne near York who:

> Ferrea qui domitans potuit formare metalla, ...
> Malleus in ferrum peditat stridente carmino.
>
> (De Abbatibus pp.276-7).

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1. Metrical Charm, IV, 16-9.
2. The Gifts of Men, 62.
3. cf. Camones Edgari XII, ed. Thorpe B. (1840) p.296.
4. Historia Abbatum, p.372.
5. Monumenta Moguntina, ed. Jaffé P. (1866) Epist. 61-2, 100.

In the other known area of prolific Anglo-Saxon iron-working at Glastonbury, the legend is recorded how St. Dunstan tweaked the Devil's nose with the blacksmith's tongs that he carried as an indication of his mastery of the craft.[1] The rich Pucklechurch bloomery was under the jurisdiction of Glastonbury Abbey, just as the thriving ores of County Durham belonged to the estates of St. Cuthbert,[2] and there can be little doubt but that ecclesiastical direction from the eighth century onwards reintroduced the element of centralised industrialisation that had lapsed with the departure of the Romans. From roughly the same time too, a renewed and very similar demand is occasioned both by the incursions of the Danes, and the reorganisation of the fyrd.

Despite the multiplicity of smiths in earlier times, the Laws had recognised their special position in society. Aethelberht of Kent required that a king's smith need pay only half the price of any given wergild,[3] and in the Laws of Ine, compiled about 690 A.D., a gesiðcund-man leaving his holding is allowed to take with him as indispensable his reeve, smith and children's nurse.[4] Among the Celtic

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1. A later version of the Dunstan legend is sited at Mayfield in Sussex, another notable iron producing area, although not apparently at this time, (Straker E. (1951) Wealden Iron, p.31) A parallel to the Dunstan legend, is that of St. Eligius (Eloy) of seventh century France.
2. Boldon Buke, passim, and see this section, p.344.
3. Liebermann F. (1903). Die Gesetze der Angelsachsen I. cap.7, p.3.
4. cap. 63, Stubbs W. Select Charters, (1948), p.69.

races at this time too the smith enjoys a place of high esteem. According to the tenth century codification of the Laws of Hywel Dda (c.950 A.D.), blacksmiths in general belong to a superior class of free tribesmen, while the king's own weapon-smith ranks as the ninth officer of the royal court.[1] In Ireland smiths acted as local administrative officers, and sat at the table of the king in Tara.[2] By the end of the period, if the smith had lost some of his aura of mystery, his place in the economy of the state is no less pre-eminent, for as Ælfric has one of his pupils relate:

> Hwanon sylan scear oððe culter, ðe na gade hæfð buton of cræfte minon? Hwanon fiscere ancgel, oððe sceowyrhton æl, oððe seamere nædl? Nis hit of minon geweorce?

To which the almost inevitable response comes:

Soð witodlice sægst .....(Colloquy ll.220-4).

There appear to have been two main stages in the mode of weapon production of Anglo-Saxon England, coincident, in all probability, with the two phases into which our classification of spear-heads has fallen. The first stage: that of fragmented communalism, is characteristic of the period of settlement and of the divided Heptarchy, when each comitatus, village or estate will have provided its own

1. Davies D.J. (1933) The Economic History of Wales prior to 1880, pp.12-4.
2. Rees A. and B. (1961), p.34: The Ancient Laws of Ireland, III, 273.

military necessities from its own forge, and when each man may have been something of his own smith capable of at least making running repairs to his own weapons.[1] The necessity of this, together with the degree of prestige attached to the ability of an ordinary man to exhibit the blacksmith's art, no doubt continued well into the second stage, but this is defined more significantly by a general re-establishment of organisation in the production and working of iron, initially under the central direction of monastic baillifs, but stimulated and taken up by the reformed fyrd of the later Anglo-Saxon period.

The first stage is represented by the wide diversity of material remaining from Anglo-Saxon cemeteries of the pagan period, and by the degree of regionalisation inferable from the classification of profiles. Within a particular cemtery, certain spear-heads, like the almost identical pieces from graves 56 and 223 at Guildown,[2] are clearly the work of a single smith; while on a rather larger scale the curiously "Saxon" distribution of series K, and the limited regionalisation of for instance group K3 in particular,[3] is characteristic of a form of group conscious-

1. Only the modcræftig smið however, will have been capable of the larger and more expensive pieces of equipment, like the helm oððe hupseax, oððe heaðubyrnan, scirne mece oððe scyldes rond, described by the Gifts of Men (64-5).
2. See section III, p. 110 ; and cf. the E series pieces from Ipswich, which are so distinctive as to be probably the products of a single local forge. (See p. 148).
3. Ibidem, p. 226, fig.78.

ness probably dependent upon the impulse from a single smithy, or at least a group of smiths in close contact. The incident which involved St. Ecgwin with the blacksmiths of Alcester certainly obliquely attests to the strong-willed and independent nature of these craftsmen in early Anglo-Saxon England.[1]

The remark of Sidonius Appolinarius, that each of the fifth century Goths "reforged their pruning hooks into swords"[2] is no doubt to be considered little more than a common poetic image, but the early material of the Atlakviða mourns those ordinary members of the comitatus who might no longer be seen in their seats:

> Sera ðu siðan i seti miðio
> gullz-miðlendr geira scepta,
>
> (37(5-8).

and certainly since earliest times it will have been the natural responsibility of the individual warrior to keep his own weapons in a good state of repair. Gregory of Tours implies a regular insepction of the lances and other arms of the later fifth century Frankish army under Clovis.[3] No doubt those of kings and noblemen would have been dealt with as the special duty of a personal armiger or scildbora, but the anonymous Chronicon Fani Sancti Neoti, describes King Alfred in defeat, seated in front of the peasant woman's fire praeparavit sibi arcum et sagittas et alia

1. Chronicon Abbatiae de Evesham, p.26.
2. Pan. Avitus, 411-2.
3. Scriptorum Rerum Merovingicarum, tom. I MGH, lib.II, 27.

bellorum instrumenta.[1] It appears from the Irish Laws that persons other than professional smiths might possess anvils,[2] and no doubt generally during the later period many men were capable of forging on their own behalf, as implied in the casual statement of Đorbjorn Brunason, that: ok skal fara upp til smiðju i dag til Đorgauts ok skal smiða ðar.[3] The specialist smith will always have maintained a position of peculiar importance, however, as might be inferred from such smith's graves as have been recorded.

The second stage of Old English iron-working, with the introduction of a "medieval" form of more consolidated economy, is marked by the considerable reduction of types of spear-head classifiable, the plethora of early regionalised forms displaced by a smaller number of more regularly patterned products.[4] The early obligation of all able ffeemen to serve in the fyrd, each providing his own weapons,[5] presumably made by the local smith for the most part, seems to have contined throughout the Anglo-Saxon period and well into early Medieval times;[6] but by the end of the eighth or beginning of the ninth century, a formal reorganisation seems to have begun, whereby a more limited

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1. 53(b). This appears only as a later interpolation in Asser, to whom the story is frequently attributed (sub anno 878), but there seems little doubt of its early origin.
2. Hancock W.N. and Mahony T.O. (1899) II, p.119.
3. Heiðarvíga saga, p.82, 17-8.
4. This would conform with the general principle that an increasingly mobile society initiates the modification of, and finally obviates, unconforming group characteristics.
5. Implied in the Laws of Ine, cap.51;
6. See section VI, p.574.

number of men are required from given territorial units, who might, it is presumed, have been better equipped. Already by 799 A.D. Cenwulf of Mercia demands that a certain estate of thirty hides need furnish only five men when the fyrd was called out,[1] and by the end of the period the Domesday survey records a general five-hide unit for the the whole of the country.[2] At the same time, the general growth of commutation, or money payment in lieu of personal service, is seen throughout the latter Anglo-Saxon period, which together with the imposition of fyrdwite, or financial payment levied in default of warrior levies, was used to equip and employ a growing number of hiredmenn or mercenary troops in the later Fyrd. These two institutions seem to have existed only rather awkwardly side by side during the later centuries of the Anglo-Saxon period, but the confusion has been convincingly resolved recently by Hollister's distinction between a Great fyrd, and a Select fyrd,[4] the former essentially local and defensive, originating with the settlement as a kind of Home Guard, and called out later in the period only at times of particular national emergency; and the latter a choicer

1. Stenton F.M. (1943) p.288.
2. For instance, of Berkshire: "Si rex mittebat alicubi exercitum de quinque hidis tantum miles ibat, et ad eius victum vel stipendium de unaquaque hida dabantur et iiii solidi ad duos menses." DB. I, 56(b) And cf. Hollister C.W. (1962) Anglo-Saxon Military Institutions, cap.3.
3. From 1012 A.D. onwards Danegeld was still levied, but used for the support of mercenaries rather than thepayment of tribute: (Hollister C.W. (1962) p.20).
4. Hollister C.W. (1962) pp.25-6.

standing army of manageable size, well equipped, and at least partially trained, with groups known as lið, butsecrls or hus karlas perhaps forming a firm core.[1] Very little is known of the nature of this later Old English army, but a far greater degree of administrative organisation is to be assumed, with an increasingly centralised demand on the centres of production and working of iron. A Carolingian capitulary dated 806 A.D., requires that in addition to the general appurtenances of war, army commanders should ensure their train includes:

> in carris vestris utensilia diversi generis.... utensilia que in hostem sunt necessaria.[2]

which will have most certainly included the materials, tools and one or a number of weapon-smiths. In time of war, such bodies of men will have made the sort of running repairs and re-equipments as may have been required during the course of a campaign, while in time of peace they will have replenished the central stocks of weapons from which the fyrd was armed. Only under some sort of centrally directed system as this could the specialised kinds of weapon have been produced that Paulus Diaconus records as having been made under Alboin.[3] The provision of a gold-hilted sword and a gold-mounted axe for each of the members

1. Ibid. pp.14-8.
2. Pertz G.H. III, 145.
3. Historia Langobardorum, I, 27.

Fig.102. 1. Weland, from the Franks Casket.
2. Tubal Cain, from BM. MS. Cotton Claudius BIV, fol. 10.
3. From the Bayeux Tapestry.

of Cnut's bodyguard,[1] is likely to have represented an original property or status qualification of the old kind; but by this time, like the:

> loricam trilicem indutam, .. cassidem ex parte deauratam, gladium deauratis capulis renibus,... Danicam securim auro argentoque,....clypeum cujus umbo clavique erant deaurati,... lanceam quae lingua Anglorum ategar appelatur,

of Godwine's presentation to Harald Harthacanute,[2] they will undoubtedly have been the production of specialist forges, rather than the individual purchases of each warrior, and very different from the motley collection of weapons carried by the older "greater fyrd." The Chronicle records the seizure of just one central stock as this, that of Tostig at York, captured in the Northumbrian rising of 1064 A.D.[3] Armour in bulk of all kinds - byrnies, helmets, swords, axes, and large quantities of spears are depicted at the Norman embarkation of 1066 in the Bayeux Tapestry, superscribed isti portant armas ad naves, et hic trahunt carrum cum vino et armis, (fig.102(3).

Although the Domesday commissioners seem to have regarded the smith merely as any other artisan - an economic index rendering so much rent and taxable accordingly, later Old English iron-work, despite Wheeler's hint of

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1. Geðynco (2), but cf. Norðleoda (10); Liebermann F. (1903) I, pp.456, 460.
2. Florentii Wigorniensis, Chronicon ex Chronicis, ed. Thorpe B. (1848). I. p.195.
3. Anglo-Saxon Chronicle E, E, sub. anno 1964

denigration,[1] apparently achieved a very high standard indeed. The ON. poem on the battle of Hafursfiord (872 A.D.), where:

> Hlaðnir varn holda ok hvitra skjolda,
> vigr vestroenna ok valskra sverda
>
> (Haraldzs. harfagra 18(52)

implies as high a respect for the English spear as the Frankish sword.[2] Certainly by the time of the Conquest William of Poitiers is so far impressed by the skill of English artificing as to observe:

> egregrie viri in omni valent artificio. Ad hoc incolere apud eos Germani solebant talium artium scientissimi,[3]

and just as eighth century Northumbrian knives had been valued in Mainz,[4] English cutlery remained in high repute in France throughout the Middle Ages.[5]

The Techniques of the Old English Weapon-smith

These are perhaps best understood through a mechanical analysis of the actual products of the forge, together with a consideration of the tools and materials available.

Apart from the Crayke and Hurbuck hoards already mentioned,[6]

1. Wheeler R.E.M. (1935) p.173.
2. cf. Falk H. (1914) p.40.
3. Gesta Wilhelmi, p.155.
4. See this section, p. 343.
5. Pagé C. (1896) La coutellerie depuis l'origine jusqu'à nos jours, I, p.158.
6. A woodworker's plane accompanied gr.26 at Sarre; a hammer and adze come respectively from graves 1 and 10 at Soham; chisels were found at Salisbury and Little Wilbraham gr.34; an adze and a chisel at Bifrons, and tongs from Sibertswold gr.115.

only the occasional tool accompanies artisan burials in earlier Anglo-Saxon England, while the "slag" which is frequently reported from pagan graves is as likely in the absence of tools, to be ascribed to some vestigal crematory rite.[1] More extensive continental material, collected from all periods by Ohlhaver, indicates that the basic tools and materials must have been common to the whole of western Europe, deriving for the most part from Roman forms.[2] Further north, an impressive range of well-equipped smiths' graves are known from the Viking period,[3] while from Mästermyr (Gotland) comes the most remarkable discovery of a complete smith's tool-chest, containing a full range of hammers, tongs, saws, axes, adzes, files, rasps, swages, fullers, a mandril, and even a surprisingly modern looking rabbiting plane.[4]

In none of these collections, however, is there any indication of the kind of anvil employed. This would probably have formed an expensive item of equipment, belonging to the forge, rather than to the personal tool-chest

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1. Baldwin Brown G. (1914) IV, p.417.
2. Ohlhaver H. (1939) Der germanische Schmeid und sein Werkzeug. A further useful summary of smith's tools is made by Greig S, (1920) Smedverktoi i Norske gravfund; Oldtiden IX, p.21 ff.
3. The best known is probably that from Bygland: (Blindheim C. (1963) Smedgraven fra Bygland i Morgedal; Viking, XXVI, pp.25-80. Smith's tools occured in Viking graves in the British Isles at: Knoc-y-doonee, Ballinaby and Kilmainham-Islandbridge, (Shetelig H. (1940) II, pp.33-4, fig.15; III p.47 fig.27-8; IV p.23.)
4. Stockolm Mus. regs. 21592. This find is partly illustrated by Arbman H. (1961) pp.29, 197, pl.2-5.

of any particular smith.[1] Here, the best evidence comes from Anglo-Saxon sources. The Weland scene on the front-left-hand panel of the Franks Casket, probably to be dated on epigraphic grounds to an Anglian area of the earliest eighth century,[2] (fig.102(1), is particularly valuable. It shows a single rectangular block with side loops and top seatings to receive subsidiary tools, which is more or less identical with known field anvils from the Roman period.[3] Free standing horned or "bick-iron" anvils, while found in earlier Iron Age contexts, do not appear to have been in favour in Roman forges, and must form a relatively late introduction in England, although Theophilus Rugerus describes incudes aequales et cornutae.[4] Normally it seems that the function of the bick-iron would be performed by subsidiary tanged tools like mandrils seated in the top or sides of the larger block anvil. These are shown in position in the Franks Casket scene, and probably the block anvil represents the "normal" Anglo-Saxon form.

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1. Early Irish law imposes a special series of fines for damage to an anvil, (Hancock W.N. and Mahoney T.O. (1873) III, p.191).
2. Napier A.S. (1901) in An English Miscellany, presented to J. Furnivall; and cf. Krapp G.V. and Dobbie E.V.K. (1942) ASPR VI, pp. cxxix-cxxx. If the casket is Mercian it may be rather earlier than if it is Northumbrian (Page R.I. (1962) A note on the transliteration of OE. Runic Inscriptions; English Studies, XLIII, pp.484-90.) Page gives a useful caveat on the uncritical use of linguistic dating in: (1959) Language and dating in OE. Inscriptions; Anglia LXXVII, pp.385-406.
3. Ohlhaver H. (1939) pp.32-41, abb.10.
4. De Diversis Artibus, III, 5. And cf. nefsteði in Olafss. Tryggvasonar, 90.

So conservative indeed are the accompaniments of the forge, that apart from rather more complicated forms of bellows, the smith scene on the fourth century sarcophagus from Saint-Aignan[1] differs little from those of the late Anglo-Saxon manuscripts: Junius XI,[2] and Cotton Claudius BIV (fig.102 (2),[3] or either of these from the later Medieval MS. BM. Sloane 3983 fol.5. With this evidence of anvil and forge, supplemented by Theophilus Rugerus, and one or two graphic, if oblique, allusions in the Riddles,[4] the main background to the Anglo-Saxon weapon-smith's techniques is clear.

The Forge Processes involved in the manufacture of most of the simpler kinds of Anglo-Saxon spear-heads are straightforward enough, although carried out with varying degrees of skill.

The first stage of initially shaping a suitably chosen billet or cut from the bloom, would have been carried out on the flat surface of a block anvil, with one of the medium weight pene hammers most commonly found in Dark-Age tool sets. Perhaps the billet chosen would already be half formed for the purpose, in the manner of the Hedemark-

1. Duval P.M. (1962) L'apport technique des Romains; in Histoire générale des techniques, I, p.245.
2. Reproduced by Ellis H. (1932) pl.lxxix. Further forge scenes are known from the Halton (Lancs) cross, Swedish picture stones from Ramsund and Gök (Södermanland), and Hallestad church (Norway) carved posts. And cf. the Utrecht Psalter p.14, and Harley MS. 603, fol. 6v.
3. Fol.10. Schubert H.R. (1957) p.69, considers that the man holding the tongs here (fig.102(2), carries in his other hand a tool bag, but these are clearly, and more appropriately, bellows.
4. Eg. Riddles, 37, 62, 86, 90 etc. and cf. Heiðrekss. 9

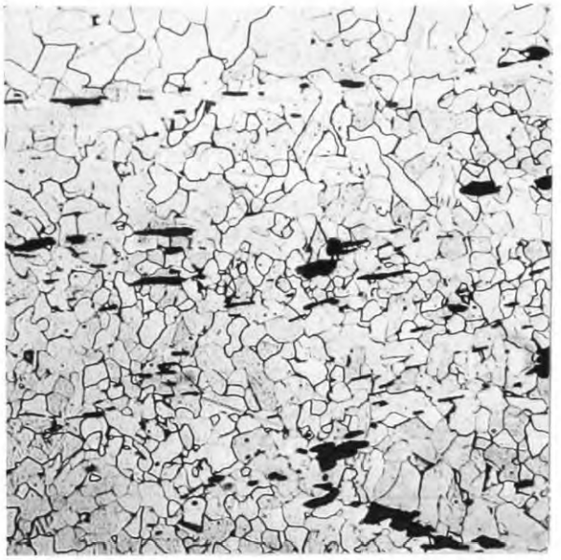
Telemark stocks previously described.[1] In any case, the more knowledgeable smith will have repeated the initial drawing-out processes, to ensure the introduction into the blade of the valuable longitudinal fibrous sturcture, essential to particularly the later lengthier and more slender examples. Estimated lengths depending upon the particular profile required, will be marked off and forged accordingly, for blade, shank and socket. The importance of accuracy in this initial estimation is clear, as any subsequent jointing along the central line, however carefully welded, might prove disastrously weak. The singular regularity of the lengthy shanks of so many of the L series for instance, best exemplified in this country by the pristine condition of the Carvoran piece, whether square, round or facetted in section, strikes the practical worker in itself as a testimony to the patient skill of the Dark Age Smith, when it is observed that this is made up not from a modern rolled rod, but a bloom massa ferri. Relatively few profiles however will have required this lengthy shank to be drawn out, and the normal initial billet form will have been wedge-like, the socket end worked evenly but thinly spatulate, its edge lines straight and the bottom rounded in outline. Greater attention will have been given to the blade part at this stage, however, which will probably have been knocked out into more or less its final outline from beginning, supposing it to have been a simple or

1. See this section p. 352.

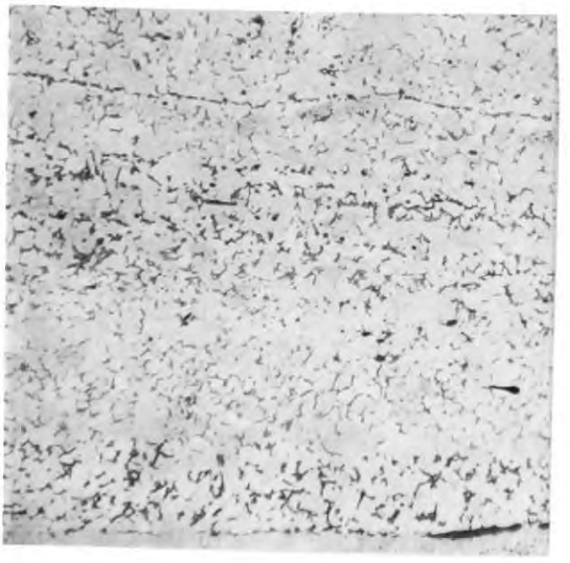
Fig.103. Micrographic cross-sections of selected spear-heads.

(1) Fen Ditton (camb 158 52(3) (I2) x 100.
(2) Battersea (bm 58 5-14 1) (K2) x 60.
(3-6) Reading (read 237 62a): pattern-welded blade:
(3) Central butt-welds, unetched, low magnification.
(4) Single butt-weld, x 55.
(5) Surface veneer weld, x 55.
(6) Martensitic cutting edge, x 440.

Supplied by Messrs. R.Organ, N.Angus & N.Ridley.



1



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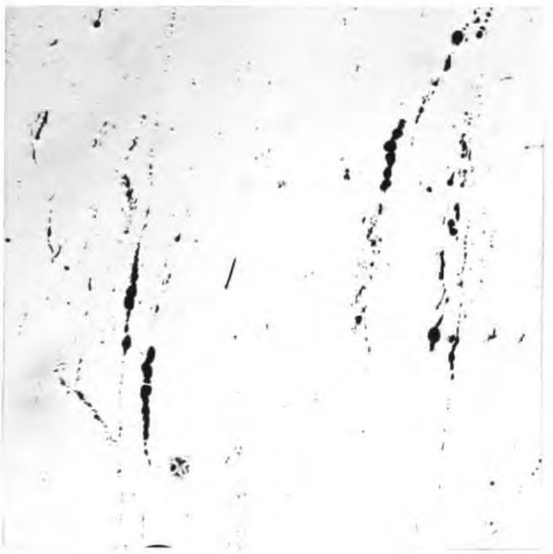

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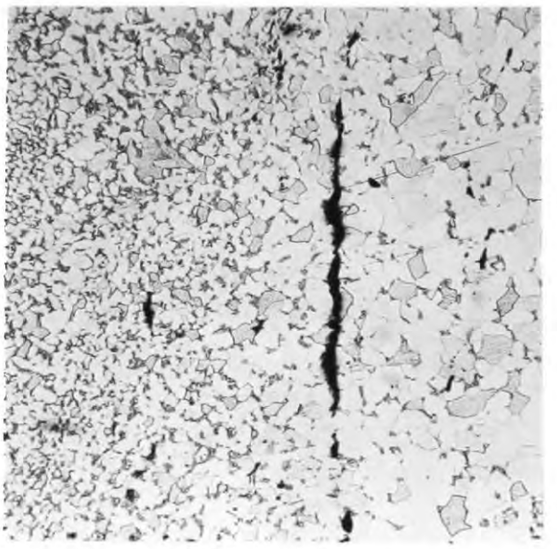

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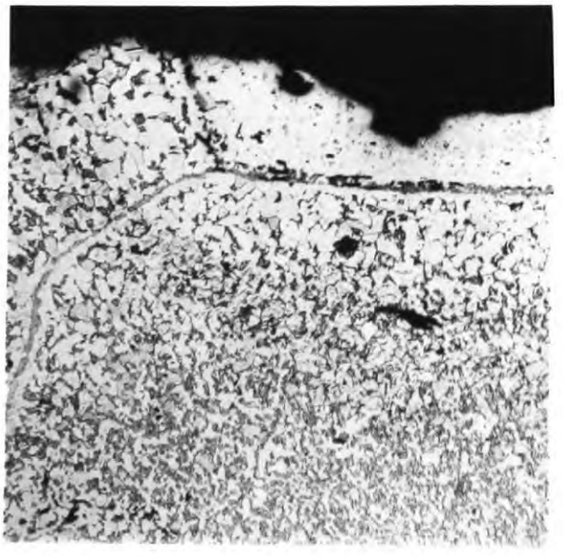

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6

"unstructured" blade, working outwards from the high central line to the edge to ensure an appropriately sturdy section; but at the same time avoiding any unnecessary disturbance to the longitudinal fibres. The skilful smith will have tried to augment any longitudinal structure there may have been in the billet alread, and the sort of hot drawing-out as described at the hands of the Irish smith Daorghlas,[1] induces a cleavage with the texture of dense "flaky pastry" which is normally only observable with a fracture or a particular degree of surface corrosion. These lines of "solution" or continuity are well illustrated in the magnified cross-section of a blade of group K2 from Battersea (fig.103(2). A hot-worked mild steel of about 0.1% carbon, with the pearlite showing as small grey inclusions. The solution lines are due to this carbon separating from the impurities, which are probably represented by manganese sulphide in this example. In the butt-welded cutting edges of a later pattern-welded spear from the Thames at Reading (fig.103(3), these lines of continuity are shown to converge as a result of hammering to shape outwards towards the edge.

At the same time these lines of continuity might be paralleled by "stringers", that is laminations formed by slag inclusions picked up from the forge fire, the anvil or hammer surfaces, which are then spun out into the same long thin lines in the course of this process. Provided such inclusions are more or less continuous and not too bulky,

1. Cited by Christiansen R.T. (1931) p.207.

they indicate a longitudinal strength in the final product, much in the manner of wood graining. A crude form of cementation, or very partial steeling, is achieved, which although far removed from a truly homogenous steel, or a deliberately carburised section, is undoubtedly superior to simple ferrite. The magnified cross-section from the cutting edge of a blade of group I2 from Fen Ditton (fig. 103(1), shows a white ground-mass which represents pure ferrite, traversed by slag "stringers" shown black in section, forged into a laminar structure spread towards the edge in the process of forging outwards from the central line of the blade, thus giving a directional appearance to the flattened particles. The carbon content of the metal here is very low, and there is no indication of carburisation or heat-treatments, but the densely laminated structure, with a large number of stringers, their regular spacing and small size, must have given considerable longitudinal strength to the blade.

Simple vertical stringer-laminations are superficially visible on many early blades, like those from Haslingfield (12) or Alfriston graves 54 and U(1), and later ones like that from Horning. Occasionally too, both early as at Haslingfield (2) or late as at Shifford, these laminations are shown diagonally in the lower blade, where they usually

indicate the lines of butt-welding in a composite blade (eg. figs. 93(2), 96(2). A piece of group J4 from Wandsworth (lm A5605) shows closely packed stringers in swathes down the lengthy shanks. In an example from group 16, from grave 14 at Snell's Corner, careful cleaning has revealed an overall laminated structure with slag inclusions hammered flat along the length of the blade, which continue for the whole length of the spear, over the junction to encircle and clasp the socket. This indicates a considerable degree of care taken in drawing out the entire billet, before its division into functional parts. That many sockets were laminated in this way, is supported by the evidence of Vicker's tests, which often show that the hardness of sockets equals or exceeds that of the blades.[1]

Socketing

The second stage of forging was to provide an adequate form of hafting which usually takes the form of simple socketing. The thin spatulate end of the billet is forged into a conical tubular shape by hammering around the spike of a mandril - a curiously rare instrument in view of its indispensible nature.[2] It will have depended upon the calibre

1. See this section, pp.408 ff.
2. Examples occur at Mästermyr, and Halleby (Jutland); Ohlhaver H. (1939) taf.15.

of this mandril, together with the amount of material initially estimated by the smith in shaping the spatulate end, whether the final result took the form of a "cleft" socket, split open with the edges apart and merely rounded over, which seems to have been the normal form illustrated by pagan Anglo-Saxon series; or whether, as later, these edges met perfectly, and could be jointed with a butt-weld, or met only imperfectly and overlapped, so that if a firm joint was required, they had to be welded scarf-wise. An example of group S1 from the Cherwell at Magdalen Bridge Oxford (ash 1884 514) has had a close jointing down the socket skilfully brazed, which must surely be recognised as one of the earliest instances of this technique in England.[1]

Closed welded sockets seem to have been regular throughout prehistoric times from the first imitation of cast bronze models to the end of the Roman period. The great bog deposits at Vimose and Nydam I, where early Germanic ironwork is to be examined in a relatively pristine state, show spear sockets (fig. 3-5) for the most part very skilfully welded with the seam marked no more than by a slightly raised

1. Although a lengthy barbed dart (corresponding to the insular group L1) from Frouard (Nancy Mus. unregs.) has the uppermost of three binding rings over the languegts brazed with copper; and a seventh century spear from Kornwestheim (Stuttgart Mus. A2470) has a separate lug soldered onto the bottom of the socket; such sweated jointing of iron is not common in early Medieval Europe. It is proposed to publish a separate study of this feature.

line continuing directly from the ridge of a high midrib; or forming one of the angles of a polygonally facetted or fluted section. In the occasional more perfectly rounded socket, little or nothing of the seam is to be recognised from a superficially examination.

Although strongly facetted sockets occur commonly in Frankish and Alamannic contexts,[1] only the occasional facetted socket of this kind continues through the earlier Anglo-Saxon period, as in the simple J2 group profile from grave 16 at Kingston Down, and then a little more frequently in better preserved later example some of which may be imports, as from Henley (read 236 52) or the Thames (sheff J93 1279) (fig.99(1, 5). Evidence for the sort of fullers and swages most suitable to produce this sort of work, is not forthcoming from Dark Age smith's hoards, although Beck records one or two Roman examples,[2] and they are certainly known from later medieval times. The same effect might possibly have been produced with the block anvil surface and the characteristic cross-pene Anglo-Saxon hammer, but the use of these simple kinds of tools is not likely to have been abandoned during the intervening period.

A closed tubular socket is a prerequisite of their use, however, and as we have seen, open cleft sockets seem to have

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1. Eg. from Eisenach or Möhn (Böhner K. (1958) taf.29(3), 30 (1) etc.); Mindelheim (Werner J. (1955) pp.20, 33; abb.3, taf.33(3); Murr or Unterensingen (Württemberg) (Stuttgart Mus. regs. A20902; A2980).
2. Beck L. (1891) Die Geschichte des Eisens, I, p.539, fig.121

been characteristic of insular series from the time of the settlement until well after the abandonment of pagan funerary deposits. The general introduction of this characteristic is likely to date from just prior to, or more or less simultaneous with, the first of the Migrations. Closed sockets are as regular among the fourth century *læti* groups of northern Gaul as they are at Nydam, and remain dominant throughout the Dark Ages in both north and south Germanic Europe. With the cultural disturbance in north-west Europe from the time of the first folkwanderings, the origins and causes of the introduction of cleft socketing are impossible to define. Its first significant appearance is perhaps to be traced to a small number of examples from the later Roman Iron Age in northern Germany, - Mecklenburg and Lower Saxony.[1] Spreading south, and more particularly west, with the movement of peoples in the course of the fifth century, this form, while found occasionally side by side with closed forms in Alemannic contexts, right into the seventh century in some cases,[2] becomes most familiar in Frankish regions beyond the Rhine, where Böhner even adopts it as a primary element in classification.[3] It is found nowhere in

1. Beltz R. (1910), *Die vorgeschichtlichen Alterthümer des Grossherzogtums Mecklenburg-Schwerin*, p.345.; Tackenberg K. (1925) *Die Wandalen in Niederschlesien*, p.109.
2. Werner J. (1953) taf.xxxv(5), p.90.
3. Böhner K. (1958) p.146, *et passim*.

Scandinavia,[1] but becomes almost universal in England.

Among insular series, only a limited number of early groups display characteristically closed sockets. These are found in spears of group A1 and A2, both of which are immediately derivative from continental forms, and the earliest examples of which might even have been brought in the baggage of the first settlers. They are found too, more naturally, in the indigenous group K1, and to a lesser extent in its Germanic descendant in group K2;[2] but none of these groups seems ever to have been popular with the Anglo-Saxon settlers, and with their virtual disappearance by the end of the sixth century, Anglo-Saxon smiths seem to have universally adopted the cleft mode. So essential an Anglo-Saxon feature does this become thenceforward, that it is retained long after its general abandonment in continental forges some time during the course of the later sixth or early seventh century,[3] and is found still dominant in the attestedly late groups of series M to S. Some time between the beginning of the eighth century and the Conquest saw the end of the custom, but it is impossible to put a firm date to the movement. It is likely to have been a rapid change, despite the natural conservatism of the Anglo-Saxon smith, as a result of increasing mobility and centralisation of production

1. Except possibly in the odd instance from Kragehul Mose.
2. Closed sockets are also found occasionally in odd blades from early contexts, like the J1 piece from grave 6 at Luton.
3. Böhner K. (1958) I, p.146 ff.

in the later period. It is difficult too, to find a reason for the initial introduction of cleft socketing. Certainly raw materials will have been in short supply as the economy of iron-production became disrupted during the folkwanderings. And that this state of affairs was projected at least temporarily into the Anglo-Saxon settlement, is attested by the smaller sizes of many of the earlier groups.[1] But a cleft socket rather than a completely tubular one, saves very little material, although it does economise considerably on labour, and is more easily the product of a second rate forge. Perhaps then the confused domestic pattern of folkwandering society was conductive to poor weapon smithing; although it seems more likely a priori that such times of warfare would have demanded an even higher standard of production. The conditions of settlement in early Anglo-Saxon England give no further guide as to the reasons for the mode continuing here as long as it did. While cheaply made, perhaps hammered hot onto the shaft, and easily re-hafted, the weak form of joint would have made rehafting only the more necessary. Although perhaps sensibly employed for cheap expendable darts, therefore, the cleft socket is intrinsically inefficient. A cleft socket hammered tightly on to the wooden shaft insert, and fixed with just one, or occasionally

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1. See section III, p. 246 ff.

two, transversely placed nails, might serve quite adequately for the purposes of the simple forward thrust movements, that seem to have been primarily employed during the "pagan" period, with the pressure at impact running directly from the tip to the hand of the bearer.[1] It is at an obvious disadvantage with the form of lateral edge-stroke which it may be assumed came into increasing use later, together with the generally increased weight and length of the entire head. The cleft is not infrequently therefore reinforced with various kinds of wire binding and metal bands, like the ballista: eodorwirum faest.[2]

The most obvious form of strengthening at this point is to encircle the socket with some kind of flexible binding like whipped cord, as in the small foliiform piece from grave 63 at Alfriston. But such evidence as there is for cord binding on the upper part of the shaft during the later part of the period,[3] points more to some convenient provision of a handgrip, than to any desire to fasten the head more securely to the shaft. Serving the purpose more stoutly, and more usually it seems, although many cord bindings may naturally have decayed, is a small length or lengths of iron wire. These will usually have corroded into a single indistinguishable mass. Cleaning or the use of radiography,

1. See section VI, passim.
2. Riddle 17, 2.
3. See section III, p.279.

however, as with the examples from graves at Cassington (ash unreg.) or Finglesham (fig.84(2), often reveals the original quite adequately. In the latter case a close binding of 2 mm. diameter covered some remaining 6 cms., the uppermost string standing rather apart, and apparently plaited. Frequently, as in examples from Caistor grave 10, Dover B 50, or East Shefford (ash 1955 351)(fig.48(6), wiring of this kind is used in conjunction with solid bronze or iron bands. In most cases, however, simple bands stand alone, although, of course, the more delicate wire may often have decayed entirely.[1] Raised areas of this kind are an obvious place for the addition of applied ornament. The semicircular section iron forcing rings over the split sockets of Frankish "angon" forms are often inlaid with bronze bands, as seen on insular finds from (?) Bifrons (maid(1); and this is taken over into other forms from, for instance, Dover B graves 22 or 50 or East Shefford (fig.48(6). On a socket fragment from Broadstairs (2), the thick sheet bronze binding had been sprung on, and originally tinned, while another from Ramsgate (18) was decorated with serrated markings. A spear-head from grave 51 at Great Chesterford, inlaid in bronze on the blade and at the

1. In those cases as at Finglesham grave G2, or Dover B50, where the length of wiring appears to have been below and separate from the socket itself, binding the upper part of the shaft, it seems likely that originally some small length had originally joined the two.

junction, has the socket mouth enclosed with a magnificently cast bronze ring, 2 cms. high, decorated with a kerbschnitt pattern in Style I, and gilt, (fig.106(1). This sort of band fixing, holding the socket-cleft tight with a length of wire, or forcing it with a solid ring, is naturally most needed to counteract the distorting pressure of bulk or length characteristic of groups E1, J3 or L1.[1] It is also found occasionally, however, on those smaller spear-heads over which especial care has been taken. It particularly seems to occur in blades of the F series, like those from: Harnham Hill gr.24, Burford (bm 48 7-27 3(1), Caistor gr.10, Great Chesterford gr.51, or Lancing (2).[2] A particularly interesting socket fragment from North Luffenham (oak(5) has three groups of three thin iron bands regularly spaced down its length, which has the appearance of a singular antecedent to the balustering of the later group S2.

Wiring or forcing-rings of this kind, however, are most commonly found as necessary adjuncts to the provision of languets, or cheek ribbons placed vertically either side of the upper shaft to prevent its being cut in half at the most vunerable point by a lateral blow from a sword or axe of the enemy,[3] and to strengthen the blade in the delivery of

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1. Eg. from group E1, at Dover B. gr.33, or Folkestone gr.5 (fig.31(2-3), and group J3 at Dover B. gr.50 or Prittlewell gr.2, (fig.70(4).
2. The last of these has the appearance of forming a "jumped-up" socket mouth, but is probably merely a separate iron binding ring, closely corroded.
3. See section VI, p. 609.

such strokes by the bearer. Additional cheek pieces of this kind were introduced on the continent of Europe, as we have seen,[1] from the later fourth century, where they are found to be made in one with curved lugs, separate from the socket, and subsequently merely rivetted or welded on (fig.98(1). In later Frankish examples languets are basically the same, scrolled at the top to form nascent lugs, and extended below in elaborately scalloped lengths either side (fig.98(2), but still not incorporated into the socket in any durable way, but rather wired on with binding in sections down the whole length. Closed welded sockets, however, seem to be a natural physical corollorary of this form, and the effect of this is frequently extended below in the form of narrow strips of iron clamped vertically in place below the binding-rings and between the cheeks, to provide, as it were, languets on four sides. During the course of the seventh century, however, these lug-languet pieces become more firmly welded into the base of the socket, so as to appear almost integrally structured, and probably from about the beginning of the eighth century, the lugs seem to have proved sufficiently effective for the languet part to be abandoned.

Lugs, as we have seen,[2] appear to have been only a relatively late introduction to England, but there is some evidence for simple lateral languets having existed in small

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1. See section III, p.302.
2. See section III, p.307.

numbers throughout the earlier centuries of Anglo-Saxon settlement. The most part of insular finds with languet additions of this kind, like those from the Thames at Brentford (lm. 0.2060)(fig.54(5), or East Shefford (ash 1955 351)(fig.48 (6), seem to have been made up integrally with the socket in the initial drawing out of the billet, merely cut off with sets from the thinner spatulate end. No visual signs of subsequent welding or rivetting are recognisable, but then so many of the examples are too heavily corroded. A piece of group S2 from the River at Magdalen Bridge Oxford (ash 1884 514) has the languets placed on the face side of a closed socket with additional bands down its length, which is much more likely to have involved subsequent welding, rather than initial setting out.

Whereas the continental development of languets seems to have been structurally dependent on the existance of a closed socket, usually welded up together with lugs, each of the insular finds ascribable to pagan groups are found as lateral cheek pieces to the normal cleft socket. Relatively delicate and more likely to decay, very few remain with anything like, what might be assumed from continental parallels to have been their original lengths. But that this supposed feature represents more than merely the partially decayed lower end of a split socket, is indicated by the nail of the socket occuring at a point above the line of the beginning of the languets, which would otherwise be unusually high for a single rivet in any group of spears. As in the later

Frankish forms, the languets seem to have been bound tightly to the upper shaft by means of a single ring, as at Greetwell, Kempston (bm91 6-24 93), Luton grave (O), or Nassington (oundle), or with two as at Sarre grave 180, or with a band and wire as at East Shefford (ash 1955 351); rather than by nails or rivets. At East Shefford (fig.48(6), as in some of the Frankish pieces, the wire and the forcing ring, inlaid with a decorative bronze-gilt band, clamp over the beginnings of a thin iron plate which no doubt was intended to extend below to complete protective lamellae on four sides of the upper shaft.

The small number of spears which occur in England with languets are confined to a relatively limited number of groups. All are found in rather small blades, and the majority in those with modified sections, like those from Greetwell, Kempston, or Nassington belonging to group G2, or that from Brentford of group H2 (fig.54(4), while others are found in the related concave angular profiles of series F, like those from Luton grave (O), or Wilfholme (hull(2). Two very corroded pieces from Eastry (maid(3-4) seem to conform with the outlines of group E2, whiletwo others from Kent: Sarre grave 180, and East Kent (liv.(8), with one from Cliveden, have I series profiles. These groups cover more or less the entire period of pagan settlement. On the continent, where languets had been closely associated historically with the development of lugs, they disappear probably from about the beginning of the eighth

century, presumably as a result of the increased efficiency of the lugs, but in England, where they seem to have had a separate development in their own right, they continue into the later period in two examples from the S series - from Oxford (ash 1884 514), and an unprovenanced piece possibly from the Thames (lm 0.2448). Possibly features recorded in Egilss. Skallagrímssonar,[1] and Þiðrekss. af Bern,[2] indicate the later survival of protection pieces of this kind, but they might equally well refer perhaps to the lugged upper shaft of the spear, and there is no more physical evidence for their use having survived other than in the two examples described. Perhaps they existed in the form of separate elements, unfixed to the socket in any way, but as we have seen with regard to lugs, the general tendency is for an originally separate development to become subsequently incorporated into the entire weapon.

The normal method of fastening the forged socket to the whittled upper end of the shaft was by means of one or two iron or bronze nails or rivets placed transversely through the lowest part of either cleft or closed socket. Only rarely in England are nails actually found piercing the face sides of the socket. In cleft sockets this position might prove disastrously weak, being easily levered out,[3] while in

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1. cap.53. See section III, p.331 n.1.
2. cap. 27.
3. Eg. from the Thames (bm 68 9-4 8) or the City of London (lm 59. 94/26).

closed sockets it would have made an undesirable break in the line of the weld.[1] Socket nailing in insular series seems to have been made as simple as possible, with at the most just two nails placed opposite, or one above the other, simply punched cold through the side (indicated by an interior burr) and hammered flat. In some examples, as from Dover B grave 56, the nail is clenched either side, and in some the rivet hole seems to have been heavily scored, presumably for just this purpose, as at Cookham (read 327.58).

On the continent, however, where for long more care seems to have been taken over feasibly decorative details,[2] the point of the rivet is more frequently applied with ornament. In the course of the sixth and seventh centuries high round-domed bronze rivet-heads appear on various kinds of spears in Frankish and Alamannic regions, spreading to Scandinavia. These are often surrounded with delicate gilt wrythen collars perhaps originating with twisted wires, but later solid, which together with distinct kinds of inlaid decoration, marks a very real overlap with the jeweller's craft. On the socket of the blade from grave 28 at Oberflacht simple bronze-domed nail-heads seem to have been carefully soldered in, to form, with the brazing from Frouard and Oxford, some of the first

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1. Eg. from Winkfield (fig.95(4), supported by a series of baluster rings.
2. Spears from Hjortspring and related Scandinavian sites often exhibit ball-headed terminal and other moulded bronze and iron nail-heads (Nylén E. (1952) Kontinentala Gotlandsförbindelser under senare förkristen järnålder; Fornvännen 1952, p.230, fig.9-10).

recognisable uses of sweated jointing in iron.

A concave-profiled blade from the Merovingian cemetery at Underten (Lower Saxony)[1] exhibits a high-domed collar of this simple kind, but instead of having the iron rivet made flush with the surface, it projects for a short distance either side of the socket face. Single projecting nails of this kind are relatively delicate and subject to decay, and no doubt this example from Underten represents merely a chance survival of what might originally have been a much more common feature. Rather later literary evidence from the Gislassaga implies that, in at least some cases, the socket nail protruded far enough to be grasped with the hand,[2] and certainly during the earlier tenth century the long foliiform blades of Petersen's type I are characterised by a long row of from eleven to fifteen projecting rivets extending down the lateral sides of the socket, a feature which sometimes spreads into angular profiles of his type F.[3] So many rivets above the tip of the shaft serve no functional purpose when one or two alone will secure the socket perfectly well, and they are not in themselves decorative, merely detracting from the appearance of the silver inlaid sockets with which they so oftenconcur. An example from a barrow at Hov i Gran, (Opland)[4] may serve to throw some light on this curious feature. A slender folii-

1. Jacob-Friesen K. (1939) p.270, abb.352.
2. Cited by Vigfusson G. and Powell F.Y. (1905), I, p.319.
3. Petersen J. (1919) p.31, fig.20.
4. Ibidem, p.29; Oslo Museum, regs. C4423; and cf another from Forset (Trondelag) Trondheim Mus. regs.6236.

form blade with delicate vertical fullering on the socket, this must be considered to correspond in every detail with Petersen's lugged type C, centring on the second half of the ninth century, but has the singular feature of replacing the lugs by four stout nails extending either side of the socket base, graduated in size downwards from larger to smaller. Immediately antecedent in form, it seems likely in view of this overlap, that the nailing of Petersen's type I is intended to have a similar function to that of the lugged series in general, acting, that is, as a form of baffle for opposing blows.

From the time of the Book of Kells, probably in the later eighth century,[1] and earlier ninth century manuscripts like the Paris Prudentius or Corbie Psalter,[2] and increasingly in the tenth and eleventh centuries, the spear-heads conventionally depicted by Anglo-Saxon illuminators are commonly shown with one or a number of cross-strokes placed in the upper shaft. Most often just one, two or three short straight lines are drawn; at other times the artist's fancy has led, as in the case of the Tenison Prudentius,[3] to the elaboration of this feature into a series of decorative scrolls appended to often scalloped blades which can hardly have had any relation to factual reality. It is commonly supposed that this convention was intended to represent the lugs of the T

1. fol.200; Fig. 110(3)
2. The former reproduced by Hewitt J. (1870 p.113, pl.xiv(4); the latter a manuscript at Amiens.
3. BM. Addit MS. 24199, fols.2v, 3 etc.

series, but if this is universally the case, serious anomalies occur. Sometimes only a single cross-stroke is given, and sometimes more than the two that would best represent the supposed lugs. In some instances, as in those carried by the horsemen of the Ælfric Pentateuch,[1] these lines occur in a clearly junction-balustered blade, while the same treatment is given to arrow-heads in Harley MS. 603.[2] Similarly inconsistent would be the common provision of such "lugs" to missiles in general.[3]

The functional origins of these cross-bars might, in fact, have been various. In some, as in the more realistically drawn resurrection scene of the Benedictional of St. Æthelwold,[4] they may have been intended to represent the string-lines of balustering, or lower down, the break between socket and shaft. A small number, certainly, may have been intended to represent the lugs of the T series, and here the drawings of the Psalter Harley MS. 603 usefully indicate how the convention may have arisen. In some instances, as in fols. 8v or 10v, single but heavily emphatic cross-strokes are found with the ends expanded vertically to give a clear impression of actual plate lugs. Another, fol. 7r, has the outline only given with two cross-strokes placed diagonally to form a cross-pattee with a vertical join either end.

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1. BM. MS. Cott. Claudius B IV; reproduced by Hewitt J. (1855) fig.16.
2. In the hands of a bowman, fol.4, and another mounted bowman, fol.25.
3. BM. Harley MS. 603, fol.56v. etc., and the Bayeux Tapestry.
4. Gage J. (1832) pl.20.

The majority, however, as in fols. 1v, 7r or 8v, have two simple cross-strokes with the barest of serifs terminating the upper, which in some cases is no more than a scratch or scarcely visible at all. Some of the many instances then, may have developed by this process of increasing conventionality. But many others, as in the anomalous cases described, are most convincingly interpreted as socket-nailing or rivets. The bannered lance held by the haloed warrior on fol. 13v of the Harley Psalter, is carefully drawn by comparison with most; and shows immediately below a pair of obviously solid lugs a further lighter stroke which most plausibly represents a transverse rivet.[1] Thus interpreted, these tenth and eleventh century depictions can be seen to lie in the mainstream of artistic depiction in which nails are realistically represented, from the earliest examples in the Book of Kells to the latest as in the late eleventh century Visigothic Silos Apocalypse,[2] where round-headed nails are shown projecting from either side of the upper wooden shaft, as well as from the sides of the iron socket.

Stout nails so placed may have had no other function than as a cheap substitute for welded lugs. As Wilson has recognised, though without argument,[3] it seems probable that some larger lug forms were made like the York piece (fig.99(3) separate from the socket and placed in the upper part of the

1. And cf. others, as in fol.4.
2. BM. Addit. MS. 11695, fols.233, 245v, 251v etc.
3. Wilson D.M. (1960) p.118.

shaft, though not necessarily made of wood themselves. This is clearly indicated in Goliath's spear from the Boulogne Psalter of about A.D. 1000. This would account too for the curious disparity between the large proportion of spears shown in manuscripts with lugs or cross-bars of various kinds, and the relatively sparse numbers of actual finds, even in Scandinavia. Plate lugs of the normal kind welded onto the base of the socket would have made this form of weapon even more expensive than usual, and nails substituted in the uppermost part of the shaft could have been put in with the minimum of trouble by any craftsman, and would have served the purpose almost as well. As it is, almost all of the late finds we have come from river beds, however, and with the decay of the wooden shafts, this feature would almost immediately have become detached and lost. Whatever the archaeological evidence, outstanding shaft-nails of this kind seem certainly to have been as prominent in the mind of late manuscripts illuminators, as they were in the mind of the author of Codadh Gaedhil re Gaillabh, who ascribes Scandinavian military superiority not only to the excellence of their corselets and hard, strong swords, but also to "their long, well-rivetted spears."[1]

A small number of earlier Anglo-Saxon spears were not hafted by means of a socket and nail, but were provided with a flat tang or strig to be enclosed directly by the top of the

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1. Cap.XL; and cf. the O.Sax. negild sper (Heliand 5704).

wooden shaft. Found without exception in relatively small spear-heads, the tang extends often up to the same length again below the end of the blade, which probably in most cases acted as a stop to prevent the tang splitting the end of the shaft. That from grave 66 at Linton Heath apparently had the top of the shaft bound with an iron ferrule for this purpose; in others, like another particularly well preserved piece from the same cemetery (cam 48 1535) a transverse rivet at the end fixed the head at a given depth in the shaft. It is possible that this feature represents no more than a simple means of salvaging a badly damaged weapon, but although never apparently popular, it is significantly centred, like languets, in a small number of groups: H2, G2, F3 and B1. One probably late piece occurs from the Thames at Brentford (1m 0.2086) with simple bolstering below the blade, and some part of the wooden shaft remaining; but apart from this particular possibly imported piece,[1] the feature seems to be early in England.[2] Insufficiently stable for the delivery of any kind of lateral strokes, the form is eminently suited to forward thrust movements, or even more to use as a missile. The smallest pieces of groups B1, like those from Linton Heath

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1. A very similar junction-balustered piece is figured by Kivikoski E. (1947) fig.522.
2. Two presumably late pieces from Camerton gs. 19 and 30, were described by Dom Ethelbert Horne as having "tangs", but he seems, like some other earlier excavators, to have used this word indiscriminately to mean "socket" or "hafting". The objects themselves are now missing from the Taunton collections.

grave 66 or Laceby (99 54), would have been appropriate for just this, but others, like those of group H2, with the helicoidal section, are unlikely to have had such care taken over the production of a weapon as easily lost as a missile.

While found occasionally during Merovingian times in Norway,[1] tanging is particularly characteristic of eastern Baltic lands. Tangs occur on barbed darts in Finland from the beginning of Migration times until the early eighth century, and are subsequently found in narrow leaf-shaped blades with low basal angles, general in the eighth and ninth centuries.[2] Tangs are found again in the barbed darts of Petersen's type L, which he recognises as a late reintroduction during the course of the ninth century, and which we might well attribute to Celtic influence as a result of Norse settlement in Ireland.[3] Some of these are given a clear shoulder in the tang to act as a stop against the end of the shaft, much like the tanged L2 piece from Plumpton Plain, but this has a much more solid square section tang and is probably not to be associated with this development. It seems clear from the overall pattern, however, that tanging is generally associated with the hafting of missiles rather

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1. Just apparently on large foliiform midribbed blades from Mindresund (Sogn og Fjordane)(Bergen Mus. regs. B9054); and from a grave at Geilvollen (Sør Trondelag)(Gjessing G. (19-34) pl.xxii(c).
2. Salmo H. (1938) pp.209-35; Kivikoski E. (1947) pp.55-6, taf. 63 (515-6), 64(517-22). The later form is found in a grave at Lapinlahti (Sakkala) with a spear of Petersen's type A, (Salmo H. (1938) pp.49-50, abb.12).
3. Petersen J. (1919) pp.33-4, fig.23-4; and cf. section III, p.244.

than other forms of hand-spear.

The Junction

Final structural attention would most probably have been given to the particularly vunerable point of junction between socket and blade. In some of the delicately made long slender-shanked darts, like those of group J4 or L1, there may well have been some deliberate intention to have the missile deformed on impact, and thus rendered useless for return use by the enemy,[1] and in well delivered forward thrust movements, for which the majority of the earlier series seem best designed, there will have been little need for strengthening at this point. But with the more slender forms of later times, and the lateral movements that it may be assumed occurred increasingly,[2] too slender junction pieces might well have bent or fractured altogether, like that of Thorgeir, who:

> Lagði spjoti i gegnum skjöldinn ok sva i gegnum hönd Gunnari. Gunnarr snaraði sva hart skjöldinn, at spjotit brotnaði i falnum.
>
> (Njalls. 72).

This possibility is best counteracted by the addition of extra metal at the vunerable point. merely in the form of a thickening of the socket right into the blade. This is especially characteristic of later horsemen's lance-heads,[3] but apart from a single curiously pattern-welded piece in Cambridge Museum (regs. 34 971(2)(fig.91(7),[4] this most

1. See section VI, pp.606-8.
2. Ibid p. 592.
3. See section II, p.331.
4. See section III, p.273.

obvious method does not seem to have been adopted by the Anglo-Saxon smith. Certainly it would have required a drastic revision of his traditional estimations in the original process of drawing out the billet, and certainly it tends to detract from the slender æsthetic lines developed by the spear-head at this time. It is easier and more pleasing to supply additional metal at this point subsequent to the initial forging, rather than allowing for it down the entire length of the socket in the original estimation. The device adopted by the Anglo-Saxon smith resulted in the development of the S series as a whole, with additional bands and rings clasping the junction. Already in pagan times occasional composite-welded bands reinforcing the socket are known.[1] Typologically earlier, however, must be three examples loosely made with bronze. A G3 piece from Droxford (bm 1902 7-22 96) had the junction bound with a simple bronze band. An early looking E profile from Kingston (king 288)(fig. 95 (5) had a simple flat bolster made from convex strip bronze; while a more complex double balustered piece from the Thames at Mortlake (lm A14621) was divided by thin bronze wires. By far the greater number of the S series seem to have been made in this composite way, tightly bound with short lengths of stout iron wire or solid bands, and subsequently hammer-forged or welded into the body of the socket.

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1. From, for instance, Merrow or North Luffenham (oak(5). See section. III, p.178, fig.48(4).

A more advanced typological form is jumped-up in the form of simple bolsters, like those from Winkfield and Collingham, formed by crushing into the ends ofswages, or top and bottom fullers; a difficult enough process in the production of simple bulges, but perhaps virtually impossible for the more delicate types of balustering, although much more efficient to the form of the blade. It is more or less impossible to distinguish visually between results of jumping-up and a good weld, even with the aid of radiographs, and only a micrographic section can illustrate the technique perfectly.

In a small number of later lengthy foliiform blades, like those from the Thames at Brentford (lm 0.2037)(fig.89(3), or Wandsworth (lm A1960 and A13866)(fig.87(4), extra metal was forged down the face sides of the socket to be raised to a prominent "beak" at the junction with the blade. This feature appears to be confined to a small number of carefully forged English blades over which some care has been taken, with composite blades and with the cleft socket frequently decorated. Another method of strengthening the junction by means of additional metal. takes the form of hexagonal swaging, with much the same physical effect as that of swaged facetted sockets, increasing the thickness of the metal at regular intervals round the circumference. Only very few examples of this are known from England, however,[1] and it is most characteristic of

1. Examples occur from: Kingston Down gr.16, and later from Lambeth Bridge, Loddon, London Bridge (bm 56 7-1 1439 & lm A23351) and Windsor (winds. 122).

expensively decorated Scandinavian weapons, where the facetted lengths form an integral part of the silver inlaid designs.

Complex Blades

In most Anglo-Saxon spear-heads, especially of the earlier period, the blade would already have been roughed out in profile by this stage, requiring only filing at the edges and perhaps some kind of hardening heat-treatment to be complete for hafting. But others, which it was intended to provide with a composite blade structure, would merely have been drawn out from the central rod of the initial billet, and given a tip before being swaged to receive additional welds. Naturally the greatest attention seems to have been paid to the "working end" of the weapon, and the best quality spears at all times in the Anglo-Saxon period, were compositely made from different materials in an effort to achieve additional factors of strength and elasticity.

Early iron-workers, while apparently unaware of the reasons for the different character of bloom materials, and therefore unable to reproduce them at will, were certainly able to distinguish between the various grades pragmatically and to put them to appropriate use. Pliny speculates that quality perhaps depends on the nature of ore deposits together with climatic conditions at the time of smelting, but is well aware that some irons are soft and other brittle, and that each might be put to different use.[1] Hard iron is used for hammers

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1. Naturalis Historiae XXXIV (41).

and anvils, white soft iron, he says, is employed for nails. Just so, we find the same discrimination in Anglo-Saxon times when the Domesday survey records of Gloucester that it had been required to provide Edward the Confessor, with specifically "a hundred soft iron rods for rivetting the king's ships."[1] It was clearly no fortuitous matter that high quality shear steel was employed in the manufacture of chariot wheels at Llyn Cerrig Bach.[2]

Already during Roman times compositely made-up picks and hammers are known from Silchester and Newstead,[3] with pieces of steel welded onto a softer iron body. This technique offered endless opportunity for ingenuity on the part of the weapon-smith, particularly in the specialist arsenal system of Roman times. In the pilum as described by Appius, the long shank is made of soft iron with the head only of steel so that it might be used in the classical manner,[4] while an example from Osuna seems to have had an especially complex construction; the shank being made up of a central core of soft iron surrounded by a coupler of harder metal which is probably steel, thus allowing the shank to bend on violent forward impact, but at the same time able to resist enemy sword blows when retained in the hand.[5]

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1. See this section p.341.
2. Tylecote R.F. (1961) pp.202-3.
3. Evans J. (1894) Iron tools and other articles formed of iron found at Silchester; Arch. LIV, p.145, Curle J. (1911) pp.279, 285, pl. 57(7-8).
4. See section II, p.53.
5. Paris and Engelsay (1906) p.454, pl.31(4).

A more significant technique, in view of subsequent Anglo-Saxon development, was the employment of composite butt-welded blades in the continental antecedents to group A2. A priori, what seems to be required of a composite spear-head is hard steel cutting edges made up ontoan elastic ductile iron core; but in fact these spears are made primarily for forward thrust movements, and from Hallstatt[1] and increasingly through La Tène[2] times the converse is found. The centre rib emanates from the socket in one piece of steel, and softer iron lateral pieces welded on to this either side, providing a stout spike to take the major impact at the tip, and with edges only obtusely cut and not sharpened with the purpose of primary injury on their own part.[3] The introduction of these lengthy butt-welds must have been a difficult process, and although the A2 group, which in this country seems to survive into the seventh century, was never popular here, where this form continues in an unbroken tradition the mode of construction is not likely to have changed. The Basingstoke piece, so elaborately inlaid, or other A2 examples which maintain closed welded sockets, have all had a great deal of trouble taken over them, and it seems likely, therefore, that the older techniques were preserved by at least a small group of highly skilled

1. Rieth A. (1942) pp.34-6, 152-62.
2. Vouga P. (1923) col.62; and cf. Rupe H. and Müller F. (1916), Chemische und metallographische Untersuchung prähistorischer Eisenfund; Verhandlug d. Naturf. Gesell in Basel XXVII, p.134.
3. See this section p.419.

smiths, one of whose work found a place among the royal armour at Sutton Hoo. Nothing extra is observable in radiographs and therefore either the butt-welds have been very skilfully made and entirely without fault, which is hardly credible, or alternatively, the form used is that of the fork-and-wedge weld, normally retained today for making up steel with iron components. As with so many other features, only sectioning and photomicrography reveals the skills of the Anglo-Saxon weapon-smith at all adequately.

After the disappearance of group A2 there is no further evidence for composite blade forms during the earlier pagan period. The scarf or fork-and-wedge welds described give no indication of their presence with flat radiography, and surfaces are usually too corroded for any indication to be visually apparent, or for sectioning to seem practicable. The few pagan pieces that do remain in a more or less pristine state, usually due to preservation in river beds, give no signs of this sort of construction either, but it is, of course, possible that the A2 techniques which were only ever employed in this country by a small group of especially skilful smiths trained in traditional forges, survived sporadically in the work of one or two men. One simpler form of composite blade does continue with the L series of barbed darts, however, although requiring only short length butt-welds. This too, of course, is derived from continental Migration period forms.[1] A small number of blades from

1. See section II, p.80, fig.5(3-7).

Vimose have a single barb set out from a simple foliiform head with no indication of composite welding (fig.3(9), but the majority are made up simply of two triangular-section wedges laid on either side of the central swaged rod. It is possible that some, like the pilum of Appius from which they ultimately derive, were made up of steeled barbs on a soft iron shank, but by far the greatest number have stoutly made polygonal-section shanks too short for the sort of use described by Appius, and there is no reason therefore to consider that any sort of discrimination was necessarily employed between the different components of the weapon at this time (figs.3(10-11); 5(3-6). Simple Vickers's traces across the surface of a small number of pristine pieces could determine this, but it has not to date proved possible to carry out this sort of investigation on any other than insular material, and only bog finds provide appropriate specimens. A small number of the insular L series have every appearance of having the barbs set out from a simple one-piece head, like those from Beddington (guild 1012(4), Kingston (king 378) or Bifrons (maid 620)(fig.83(4-5); together with the cheaply made later tanged darts of Petersen's type L.[1] Most, however, whether early like those from South Shields or Carvoran (fig.83(1), or later like those from High Down grave 0, Strood (bm 94 8-3 81) or Sutton Hoo (bm(2, 7),(fig.83(2-3), continue the same simple butt-weld

1. See section III, p.244.

techniques observed at Vimose and Nydam I. It is probable, however, that later forms like the Frankish series were intended to distort on impact like the pilum at the time of Appius, and it is more likely therefore that different sorts of material were used for the separate elements in this case. With the corroded surface condition of the majority of insular finds however, it would require sectioning to determine this with certainty.

A small number of latish pagan period spears with recognisably composite blades indicate the probable existence of others obscured by corrosion. The lines of long edge pieces welded onto a central core are seen in the surface of a piece of group B3 from the Thames (tilbury mus.), and with the aid of radiography, in an example of group C3 from a grave at Narford Hall. A further possible example occurs in an inlaid blade of group E1 from grave 7 at Holborough. This form of construction only becomes recognisably significant however, in well preserved material of later groups. Long butt or scarf-welds of this kind are best suited to slender angular-profiled blades like those of the O series from the Thames at Brentford (lm A10571, 0.2069) or an obviously imported piece with a silver inlaid socket from Loddon; S series pieces from Northwald or Winkfield (fig.95(4), or a lugged blade from the Thames at Cookham (read 31 51).

A particularly impressive welded structure is to be seen in a pattern-welded example of group S1 from the Thames at

Shiplake (fig.104). Along either side of an apparently steeled core, less prone to corrosion and standing at a higher level than the softer sides, lie iron edge pieces which are joined to the centre with a beautifully contrived scalloped fork-and-wedge weld. This highly decorative sort of weld reappears once again on an Sl blade from Bisham, and on a seax from the Thames at Brentford,[1] but the best parallels to the technique are found applied to a very small number of late spear-heads from Scandinavia. Clear examples occur in an angular lugged blade from Fjälkestad (Skåne) dateable to the first part of the eleventh century,[2] and in a long-shanked angular blade from Rovoniemi in Finland dated to about the time of the Crusades.[3] Three other possible examples from Norway and Sweden are less clear in their present condition.[4]

Pattern-welding

While the latest steeled iron of the Anglo-Saxon period was to produce far superior blades, it is perhaps in the production of pattern-welded blades that the Dark Age weaponsmith showed his consummate skill. The nature of pattern-

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1. (1m 0.2101); Anstee J.W. and Beck L (1962) pl.12(a); possible parallels occur from the same source; (1m 0.2100, 0.2102)
2. In a private collection at Råbelov; information from Prof. Dr. H. Arbman.
3. Kivikoski E. (1947) p.40, taf.143(1105).
4. A thin angular blade, the socket inlaid with twisted wires and interlaced panels, from Hvinningstad (Valders)(Bergen Mus. regs. 2943); and cf. another (Oslo Mus. regs. 36 90); and in an angular winged blade from Rothagen (Dalarna) (SHM. Regs. 20905).

welding techniques has been the familiar subject of considerable discussion from the time of Lorange,[1] through the work of France-Lanord and others,[2] until the most recent studies of Anstee and Biek.[3] The descriptive terms devised by Neumann:[4] streifendamast "straight", winkeldamast "herring-bone" and rosendamast "curving", although a little too general to describe adequately all known forms in themselves, remain of value.

Pattern-welding had been applied to sword blades since some time in the second century of the Roman Iron Age, but there is no evidence to suggest that the technique derived from southern rather than northern Germanic sources. The quantity of such blades from the Danish bog finds from this time, as elsewhere in Scandinavia, suggest the latter as more probable. Presumably in this case, the occasional find in a strictly "Roman" context, like that from the earliest third century at the fort of Arbeia, (South Shields), will have belonged to one of the Germanic auxiliaries becoming common from this time. The increasing use of radiography shows pattern-welded sword blades to have been relatively common throughout early Anglo-Saxon times and into the tenth century, when the superior more homogeneous steeled blades of

1. Lorange A. (1889) cap, IV, pl.1-7.
2. Especially France-Lanord A. (1949) La fabrication des épées damassées aux époques mérovingienne et carolingienne; Pays gaumais X.
3. Anstee J.W. and Biek L. (1962) A study in Pattern-Welding; Med. Arch. V, pp.71-93.
4. Neumann B. (1927) Römischer Damastahl; Archiv. f.d. Eisenhüttenwesen, I, pp.241-3.

the Ulfberht-Ingelrii group apparently became available. Probably some decline in the production of these blades dated from some time in the ninth century, but further east among the Rus, the Arab Al-Birundi describes such swords as late as the eleventh century.[1]

Pattern-welding involves lengthy and expensive processes however, and is not found applied to spear-heads until late in the period, and then only relatively rarely. Less than fifty examples are known from the British Isles, and these would presumably have been owned only by the richest warriors. Decorative welding is found in a supposedly eighth century blade from Norway,[2] having the effect of fish-tail panels staggered down the centre of a roundish angular blade. The introduction of pattern-welded panels into spear blades seems to occur simultaneously with the tendency towards greater lengths and, with different usage,[3] the realisation that to use a slender blade in lateral movements, at least as stout a construction was required for the spear, as hitherto for the sword. But while some pattern-welded blades are appropriately lengthy and slender, like those from Barrington (fig.90(4) or Cookham (read 287.47)(fig.92(4), the majority of others, like those from East Anglia or Brentford (1m 0.2046)

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1. Cited by Valiki A.Z. (1936) Die Schwerter der Germanen nach Arabischen Berichten des 9-11 Jahrhunderts; Zeitschrift der Deutschen Morgenländischen Gesellschaft, XC, pp.19-37.
2. According to museum authorities at Bergen; (Bergen Mus. unregs.) cf. Lorange A. (1885) Bergen Museum Tilvæxt Oldsager 1885, p.2.
3. See section VI, pp. 606 ff.

Fig.104. Radiographed details from pattern-welded spear-heads.

(1) Shiplake (read 3481 58).
(2) Tilehurst (read 250 58).
(3) Ely (camb 22 703a).
(4) Dorchester-upon-Thames (ash 1963 1397-1402 (4).

1

2

3

4

(figs.91(6) 94(5), or the bolstered pieces from Shiplake (fig.104(1) Ely or Sonning (fig.95(1-2), seem to have been sufficiently stoutly made to have rendered such a form of strengthening structurally unecessary. Others merely have a thin strip of pattern-welded panelling inset like a veneer into the surface of the blade. In each of these instances the purpose of such pattern-welding must have been less to strengthen the blade than to please, or deceive, the eye.

The greatest number of insular finds are decorated with Neumann's winkeldamast panels - either in a single strip up either side of the centre line, as in those from Bexley (fig.88(1) or Shiplake (fig.104); - or in the form of two twisted rods adjacent up either side, as from Sonning (fig. 95(2) or Tilehurst. Usually adjacent rods were twisted in opposite directions to give the true "herringbone" effect, but occasionally, as at Ely (Camb 22 702a), they are placed running in the same direction with a much less pleasing effect. No instance is found, as in some of the more elaborate swords, where a single rod has been twisted in alternate directions throughout its length, but a variety of pattern was often achieved depending upon the degree to which the panelling had been ground down in finishing. Those from Barrington (fig.90(4), Cookham (bm 68 1-28 2) and Bisham, had been so ground as to present an entirely rosendamast appearance throughout their length. Others, as from East Anglia (fig.91(6), Kingston (read 298.47) or London (bm 56 7-1 1434), appear to have been less evenly ground, so that

winkeldamast lengths merge with rosendamast laterally or towards the tip. Most others become simply straight at the top of the panel.

In a small number of examples, like those from the River Loddon, and from the Thames at Dorchester (ash 1963 1397-1402). corrosion has stripped part of the decorative panel to show it as nothing more than a veneer set into the surface. This practice seems to have been relatively common. Radiographs of the majority of pattern-welded blades show the twisted rods welded laterally onto the swaged sides of a central core becoming distorted by hammer forging as they run out to the lower edge of the blade at the spring of the junction. Others, however, are entirely contained within the centre of the blade in a manner which can only be the result of superficial veneering. In the clearly English cleft-socketed pieces from: Bexley (fig.88(1), Cookham (fig.92(4) or Kingston (read. 298.47), the lower end of the panelling is joined with a simple loop. In obviously imported pieces from Dorchester (fig.104(4), and the Thames (bm 54 10-24 6) however, this finish is achieved by terminating each rod in a separate scroll. This latter technique, like the form of the spears it is found in, is probably Scandinavian in origin.[1] In the majority of these later spear-heads this feature is likely

1. Lorange A.L. (1889) tab. VII, 1-8. The Dorchester blade is equipped with upward-curving moulded lugs characteristic of the Baltic, and that from the Thames has small moulded accretions at the junction.

to have been purely decorative. The highly ornamental panels in a blade from Ely (camb 22 703a) extend only for the lower fifth of the blade, where they can have had little or no functional value. A lugged spear from Meuse has such veneers set into a base made up, not from a simple soft ferrite but a homogeneous steel more than just a little carbonised, where socket, edges and tip are all made in one piece.[1] Here pattern-welding represents little more than an encrustation. Probably already at the time of the settlements, and certainly by the seventh century when the later series of composite blades begin, pattern-welding had been superceded by the lengthy drawing-out processes which introduced a partially cemented laminar structure into the product. But the pattern-welded finish provided not only a pleasing appearance, but a guarantee that these processes of working over had actually taken place. Lines of solution or stringers would not be visually apparent in the pristine state of the homogeneous blade. It was merely this method of lamination, however, that gave the pattern-welded blade its strength and elasticity.

The magnified section of a pattern-welded blade from Reading (read.237.62a)(fig.103(4) usefully illustrates the internal structure of this kind of blade. Normally, when iron was heated to welding temperature in the forge, its surface absorbed an amount of carbon, so that the juxtaposed faces of the finished weld were actually "steel", containing from 0.2-0.8% carbon, with the resulting line showing greater

1. Salin E. (1957) III, p.21, fig.6.

tensile strength than the simple iron either side. In the micrograph the position of the butt-weld joining the cutting edge to the core, is seen as a vertical dark line. Such welds could rarely have been technically perfect, however, and with the inclusion of slags, it is this characteristic which results in the familiar surface patterning. It is this that is etched in the sword Gram, when:

> eldi voru eggjar utan gørvar,
> en eitrdropum innan faðar.
>
> (Brot af Sigurðarkviða, 20)

And in the Reading example, as in so many composite blades, the line of the butt-weld is readily visible just because corrosion has penetrated deepest at this point.

The Reading piece is simply veneered with an inlaid strip of pattern-welded material set into a soft core with high quality steel edge pieces. In section, the veneer shows as a light (? simple ferrite) band on the upper edge of the micrograph (fig.103(5), with the line of the butt-weld to one side and vertical below. The core varies in carbon content between 0.3 and 0.05%, with Vickers's tests showing hardness varying commensurately between 160 and 110. The edge pieces however, (to the left of the weld line) have a regular carbon content of 0.6%, and a hardness which varies between 190 and 210. What is seen here in section, is supported by surface Vickers traces of other pristine pattern-welded blades.[1]

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1. Similarly disparate readings were shown to average for instance:

	core.	patt.wdg.	edges.	socket.
Barrington	116	106-118	122	183
Ely (camb 22 703b)	119	114-119	184	114
East Anglia	208	183-203	312-262	245
NP(camb 34 971(1)	106	114-129	-	120

(A load of 30 klg. was used throughout)

Even the edge pieces of the Reading spear are a long way from being an entirely homogeneous steel however. Merovingian pattern-welded swords seem to have contained only between 0.03 and 0.2% carbon, which was supported in some instances by up to 0.3% phosphorus. Even simple seaxes from the same period seem to have had a higher average carbon content.[1] The durability and tensile strength of the Ulfbert blades, therefore, with a normal carbon content of about 0.75%,[2] totally outclassed blades made by the older technique. Probably, however, pattern-welding had been gradually becoming redundant for some time before the appearance of the 'named' products. Pattern-welding would still have retained much of its reputation, however, together with its pleasing appearance and perhaps, as is commonly supposed,[3] old or broken sword blades were used to decorate new spear-heads, either in the older manner, or in the form of veneers. In all probability this is the origin of the incident in which Thorgrim forged an old sword blade into the malaspjotr called Grasiða, which it is recorded was always apt to bend under stress in battle.[4] No late pattern-welded spear is recognisably made entirely out of an old weapon in this way, but a curiously parallel-sided pagan piece from the Thames at Barn Elms (lm A24427) seems very clearly to have been made thus out of a late Roman spatha,

1. Salin E. (1957) III, p.331.
2. Lorange A.L. (1889) p.
3. Eg. Janssens M. (1958) Essai de reconstitution d'un procédé de fabrication des lames d'épées damassées; Studs.in Conservation, III, p.99. And cf. Oakeshott R.E. (1960) p.119.
4. Gislasaga,11; and Sturlungasaga, IV 26, VI 17.

with the central fuller scarcely beaten out.

Certain pattern-welded sword blades are recognisably just veneered as early as Vimose and Nydam,[1] but the technique is probably only introduced into spear-heads after it is seen to be redundant in the larger weapons. The veneered M2 blade from Bexley belongs to what is a probably early form, while one of the lugged blades represented on the late seventh century Hornhausen stone is marked in a manner convincingly similar to this feature.[2] The same sort of panelling is found in manuscript drawings as late as the middle of the twelfth century,[3] and as Thorgrim's Grasiða was reportedly in use at the battle of Orlygstad (1238 A.D.) some 270 years after it was reforged, certain blades might certainly have survived until that time.

1. Cf. Klindt-Jensen O. (1952) Keltisk Tradition i Romersk Jernalder; Aabøger for nordisk Oldkyndighed og Historie, 1952, p.205.
2. Hahne H. (1922) p.174, taf.XII(1).
3. Eg. in the Durham Life and Miricles of St. Cuthbert, fol.16; reproduced by Thompson H.Y. (1914) Illustrations from a hundred manuscripts, pl. vi.

Toughening the finished blade

The spear-head is at this stage, to all visual intents and purposes, complete, requiring only hafting and perhaps some form of decoration before use. But the discriminating smith would not have been satisfied to leave his work there when various forms of heat treatment might endue the weapon with greater durability or tensile elasticity. Any welds involved may have induced a parallel weakening of the structure, the dangers of which seem to have been recognised at least as early as Pliny.[1] Metal adjacent to welds, while receiving no actual working, has been submitted to the same high temperatures of 870C. and above, resulting in a coarse and brittle crystalline structure. The work might be reduced to its finest, and therefore softest and toughest condition, however, by the simple process of annealing; that is by re-heating at about 900C., and then allowing it to cool naturally in the atmosphere. The temperature at which annealing takes place will differ from bloom to bloom, of course, depending upon the amount of carbon present. Simple wrought iron has to be raised to a much higher temperature, - a bright red or even yellow heat perhaps, - than a normal steel of about 0.9% carbon content, which will anneal at a much lower, full red, heat.[2]

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1. Naturalis Historiae, XXXIV, 43.
2. On the other hand, annealing curiously enlarges the crystalline form of iron which has been initially cold-forged, or at temperatures below 500C. This is of importance when we consider the common primitive practise of crushing or "work-hardening", but presumably the Old English smith will have understood pragmatically which materials responded to which treatment. Annealing certainly seems to have been sensibly employed for significant parts of tools or weapons since Roman times: (Vernier E.(1907)La bijouterie et la joaillerie égyptiennes; Mem.de L'Institute francais d'arch.du Caire, II p.51ff.

"Natural" steel had been produced long before Anglo-Saxon times as in the form of cemented blooms from Corbridge or Nanny's Croft,[1] and although those examined seem only ever to be of very uneven quality, clearly enough was available for the discriminating smith to be able to make up high quality work like the Llyn Cerrig wheel-tyres. This is shown put to use for the first time, probably in a sixth century BC spear-head from Deve Hyuk, Syria,[2] forged up from about fifty layers piled into a billet, each layer superficially carburised by cementation. The average Carbon content is 0.18, but reaches 0.6%, with the resultant structure a compacted water-marked and more or less homogenous mass, far superior to any form of later pattern-welding. Analysis of some of the Nydam I deposit swords shows a very similar sort of structure, with thin strips of carburised iron with up to .6% Carbon content supported by from.16 to .21% phosphorus,[3] and it is probable that this skilful technique continued in use at a limited number of forges throughout the Dark Ages. Pattern-welding itself had represented an effort to induce this structure together with a decorative effect, and when this is finally abandoned it was in the face of such homogeneous cementation as this.[4]

Any Anglo-Saxon weapon may therefore include partial areas of carburised material indiscriminately, dependihg

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1. See this section p. 350.
2. Coghlan H.H. (1956) pp.137-8 pl.II)IV.
3. Tylecote R.F. (1962) p.250.
4. Ibidem p.249, recognising that a low degree of carburisation together with a considerable amount of smithing produced a structure superior even to low carbon lightly wrought iron; a fact due in part to the distribution of slag.

upon the degree of cementation of the bloom from which it was made up, and how much carbonaceous matter may have been picked up from the forge or anvil and hammered into the surface during hot working. The poet of Christ II remarks on the especial skill of one who mæg styled sweord / wæpen gewyrcan,[1] and no doubt deliberative carburisation or "case-hardening" subsequent to the major forging processes, would have required a high degree of additional technical knowledge.[2] This is basically a modification of the cementation process. The surface of the weapon takes up carbon readily when brought to a red heat in the muffled presence of carbonaceous matter. This diffuses gradually from the outer surface to an inner zone, forming a superior structure with a soft tough core surrounded by a "skin" of hard steel. Theophilus Rugerus suggests the use of burnt oxhorn and salt or hog-fat muffled in goat-skin and clay,[3] but in fact almost any kind of granulated carbonaceous matter might have been used. Even the sort of wood-charcoal found at the centre of the forge fire may have given quite satisfactory results. Any areas of the weapon not required to be too hard, like the ductile core of the spear, could be protected with a coat of clay during the process. No doubt it was in this manner that the edges of the Sigurd's sword Gram were "hardened in fire" while the centre remained to be etched with/ acid.[4]

1. ll 679-80. Here the preterite form of the verb stylan seems to have been used adjectivally.
2. The process requires a very fine sense of timing. If carbon is taken up too rapidly a limited zone of over-brittle material forms, which results in "peeling", rather than the desired subtle gradation towards the centre. Up to .9% carbon is required, at which the steeling is perfectly formed, being composed entirely of pearlite. Above this, meshes of free carbide of iron are formed, making the metal over-brittle.
3. De Diversis Artibus, III, 18-9.
4. Brot af Sigurðarkvida, 20. See above, p.408.

Although only rarely found in Roman times, a wide range of objects seem to have been carburised by Anglo-Saxon smiths, albeit with varying degrees of competence. The hardening of so large and amorphous a piece of work as a byrnie, as described in The Fortunes of Men (74-5), can surely only have been feasible by case hardening. Only a very limited number of pieces of Anglo-Saxon iron-work have so far been subjected to close examination, but although only about half illustrate these hardening processes, which seem to become increasingly common towards the later part of the period, those that do, are indicative of a high standard of craftsmanship. A ninth century axe from the River Lea at Stratford (Essex) is made up from a layered iron billet, the fibre parallel to the cutting edge, with an average content of just .049% carbon (160 Vickers), but with the cutting edge discriminatingly carburised and quenched to a fine working hardness of about 450.[1] A chisel from the near contemporary Crayke hoard had been similarly treated with the head carburised to a pearlite of .9% carbon, and then the cutting edge quenched martensite (Vickers 657-870), which represents a considerable advance on Roman methods.[3] The Reading spear-head had had the cutting edge rather patchily carburised from 0.1-0.6% and then similarly reduced to a semi-

1. Coghlan H.H. (1956) pp.191-2.
2. Ibidem, p.146.
3. A fourth century axe from Silchester, for instance, while relatively hard due to a phosphorus content of up to .445%, has been neither carburised nor quenched, but perhaps merely work-hardened. (Ibidem pp.148-9). That some Roman smiths were capable of these techniques is shown by Pearson C.E. and Smythe J.A. (1937) Examination of a Roman chisel from Chesterholme; Pr. Durham Univ. Phil. Soc., IX, pp.141-5.

martensitic structure by quenching (fig.103(6.) A Merovingian blade corresponding with our group J4, with a body made up entirely from simple ferrite, had the top 2 cms. of the tip hardened to a near steel pearlite in this way.[1]

At this stage tempering or quenching in water accelerates the cooling process, and maintains the steeled zone in a fine state without allowing the components to separate out and become less hard in the process. As in Roman times, not all smiths capable of case-hardening techniques, seem to have been aware of the further advantages of quenching. Tylecote notices that while seaxes were frequently carburised along the cutting edge, they were only rarely quenched, so that only this small number achieved the maximum hardness possible.[2] The pagan blades of groups I2 and K2, sectioned (fig.103(1, 2) show no signs of such quenching, although the late pattern-welded blade from Reading, does. (fig.103(6). Another pattern-welded blade from the Kennet at Reading, has butt-welded edge pieces with an average of .45% carbon content, but no signs of quenching at all.[3]

Tylecote considers that the more sophisticated processes of tempering to achieve an exact degree of hardness, were not used during the Anglo-Saxon period,[4] but he takes no account of the good literary evidence there is for this practice.

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1. An unprovenanced piece in the Musée de la Siderurgie, Nancy.
2. Tylecote R.F. (1962) p.276.
3. Beeny H. and Collins A. (1950) Report on pattern-welding on a Viking period spear-head; Man, 50, pp.124-5
4. Tylecote R.F. (1962) p.281.

Admittedly, this requires an experienced eye, to contrive what Volundark viða calls in an aside - herðak sem hogst ðottumk (19). But basically it merely involves light heating to a point in a graded series of colours from light blue to straw,[1] which is appropriate to the particular finish desired. This induces a crystalline structure just sufficiently hard, and no more, than the function of the final product requires. It is reported of Life-taker, the sword of Kari Solmundarson, who had barely escaped burning with Njal, that:

> var blanaðr annarr eggteinninn. Ok sogðu vit Barðr, at dignat mundi hafa. Enn hann svaraði ðvi, at hann Skyldi herða i bloði Sigfusssona.
>
> (Njalls. 130).

This threat of Kari is clearly intended in context as no more than an heroic gesture, but cannot be dismissed as pure fantasy however. Fionn's smith in the Irish account, asserts that weapons are best tempered in human blood, and later ironically thrusts his newly forged sword through the body of his mother, when what he was actually looking for was the blood of a dog.[2] This is easily rationalised. The later weapons, as we have seen, were frequently made up a homogeneous carburised material very similar to modern mild steel. The metal used by Ulfbert contained .75% carbon. But while ordinarily steels of up to .5% carbon might be quenched quite satisfactorily in water, for steels of higher quality than this, a liquid rather more dense, or at least less conductive of heat, would

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1. The list of colours is conveniently tabulated by Walker W.S. (1952) The brunecg sword; MLN. LXVII, pp.516-20.
2. Cited by Christiansen R.T. (1931) pp.24, 199-200, 210.

be required if surface cracking was to be avoided. Long before, Pliny had remarked on the use of oil for this purpose.[1] Theophilus Rugerus, however, together with the near contemporary Mappae Clavicula,[2] suggests that, failing the availability of fern-fed goat urine:

> In urina etiam rufi pueri parvuli temperantur ferramenta durius quam in aqua simplici.
> (De Diversis Artibus, III, 21).

It has been argued, not without reason, that Beowulf's brunecg sweord represents the classic tempering colour-scale for edge weapons.[3]

Weapons are frequently described too, in the literature, as scurum heardne,[4] which almost certainly refers to the one other form of mechanical hardening which might have been employed by the Dark Age smith. Cold forging or crushing the surface of iron compacts the crystalline structure to some extent, which increases the hardness and elastic limit of the surface area worked over. In default of one of the more academic heat-treatments, therefore, weapons might have been endued with resistant edges by this process known as "work-hardening", which in effect is very similar to the battering the weapon might have received in battle, described by the poetic phrase scurum heardne. Pliny seems to have

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1. Naturalis Historiae, XXXIV, 41.
2. cf. Forbes R.J. (1950) Metallurgy in Antiquity, p.378.
3. Beowulf 1546, 2577-8, and cf. Maldon 163, Judith 318. Walker W.S. (1952) pp.516-20. On the other hand, perhaps this colour was brought about by some protective treatment with acid or tannin (cf. Ellis-Davidson H.R. (1962) p.28).
4. Judith 78-9, and cf. scurheard, Beowulf 1032-3, Andreas 1132, or the O.Sax. scarpen scurim, Hildebrandslied, 64

been aware, pragmatically, that hammering re-instated something of the properties of iron that had become soft through over-heating,[1] and this principle was used in Anglo-Saxon forges. The cutting edge of an axe from Reading, had apparently been decarburised from .23% to .04% carbon by over-heating. But sectioning showed that Neumann bands had been induced in the simple ferrite of the edge, which indicated an effort to reclaim the blade by cold working.[2] Deformed metal at the head of the Chesterholme chisel had reached a Vickers hardness of 212-8, by this means.[3] The relative hardness of the socket and junction pieces of the pattern-welded blades examined must have been similarly induced.[4]

While case-hardening or crushing are only superficial, forming a hard skin round a ductile core, results are nevertheless permanent. Time alone in no way effects the result of the smith's work, and careful Vickers tests carried out on pristine blades found, for instance, in the beds of rivers, will be entirely reliable, although the prepared surface of a section is clearly to be preferred. Even superficial corrosion should not effect the qualities of good workmanship of this kind, although grinding or other mechnical decay will soon enough reduce the "skin" which had been so carefully formed. It is important to consider carefully therefore, the supposition that blades were commonly ground or sharpened.

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1. Naturalis Historiae, XXXIV, 43.
2. Coghlan H. (1956) pp.190-1 pl.xiv (4).
3. See above, p. 414, n.3.
4. See above, p. 408.

The suggestion that the concave edges of certain pagan series were the result of too much grinding, has been discredited by recognition of the form as a distinctive group feature rather than as an arbitrary chance occurrence. From La Tène times, the function of the spear relied not so much on sharp edges, as sharp points. Blades from Danish bog deposits of the Roman Iron Age, like Vimose,[1] commonly have obtusely blunt edges marked off from a perimeter scribe line. This form continues in certain instances right into the seventh century, as seen in well preserved Alamannic blades from Murr, Waiblingen or Reutte.[2] Stocks of swaged but unground spears of Roman date are known from the military workshops at Corbridge,[3] while Dark Age axe stocks, similarly unground, exist from Gjerrild, Jutland.[4] Obviously each of these items will have had to be hardened before use, and the heat-treatment or crushing must therefore have been applied after, rather than before, any final grinding.

Swords certainly, and with the later increasing use of the blade, spears too, will have required occasional resharpening. Whether this involved totally fresh grinding on a wheel, as illustrated by the Utrecht Psalter,[5] or merely gentler polishing or hand honing,[6] will have determined

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1. Eg. Copenhagen Mus. regs. 1009, 4140, or 23838.
2. Stuttgart Museum regs. A20902; A33/219; III 183.
3. Forester R.H. and Knowles W.H. (1913) Corstopitum; report of excavations in 1912; Arch.Æl. 3rd.S. IX, p.250.
4. Arbman H. (1961) pp.48, 198, pl.11.
5. Fol. 35v; reproduced by Salin E. (1957) fig.24.
6. Sword-polishing seems to have been a common enough practice to have required special laws under Alfred; (Liebermann F. (1903) XIX(3). A small hand whetstone was found by a spear head at Droxford (Dale W. (1902) p.127).

whether any hardening treatment would have to be repeated. Grimme gegrundene garas featured in The Battle of Maldon, paralleling feolhearde speru, but here the latter is better interpreted as "hard as a file" than "sharpened by the file".[1] By the later period, when Ulfbert type steels responded more favourably to simple quenching or tempering, which results in a wider diffusion of effect than most carburisation, such re-hardening would have been only rarely necessary, and then much more easily accomplished.

1. Gordon E.V. (1937) The Battle of Maldon, p.50, n.108. Theophilus Rugerus used a file to test the temper of a blade (De Diversis Artibus, III, 18; and cf. Falk H. (1914) p.20. Similarly, flan mon hwiteð (Riming Poem 62) is more likely to mean in context, "man is whitened (i.e. bled) by the spear". Krapp G.P. and Dobbie E.V.K. (1936) p.314, following Grein-Köhler, assume a verb hwitan, rather than hwettan.

Decorating the blade

Throughout the literature of the period there occur references to richly ornamented spears, as to weapons of every kind, and it seems likely therefore that the best weapon-smiths will either have worked in close association with "jewel-smiths", or perhaps even combined something of the crafts themselves. Like Weland,[1] the sons of Ivaldi are clearly masters of both arts,[2] and although this is probably only to be expected of such mystical beings, actual tools are found in single deposits, like the grave of the Bygland smith,[3] which indicate the ability of the owner to encompass the finer working of the jeweller as well as the larger blacksmithing of the forge. By the eleventh century Ælfric implies a distinction between: smiðas (fabros), isene smiðas (ferrarios), goldsmið, seolforsmið, arsmið ond treowwyrhtan.[4] It is unlikely that the gold-smith and silversmith were separated as early as this, however, and probably what is referred to here is the craft rather than the craftsman. Rather later, however, Saxo Grammaticus makes a more invidious distinction between blacksmith and goldsmith, which can admit of no blurring.[5] While simple forms of semi-structural ornament therefore were obviously the product

1. Volundarkviða; and cf. the Weland scene of the Franks Casket (fig.102(1) in which the hero is seen making a jewelled cup from the skull of one of Nithad's sons.
2. See this section p.354.
3. Ibidem, p.366, n.3.
4. Colloquy, 204-6.
5. See p.354, n.2.

of the weapon-smith himself, all it is possible to conclude with any certainty, is that certain forges engaged the services of someone endowed with at least some of the jeweller's skills.

The two major forms of decoration, engraving and inlaying, which were recognised as a characteristic feature of material of the Roman Iron Age throughout free Germany, persist well into Anglo-Saxon times, albeit in a somewhat modified manner. Engraving or chasing on a polished iron surface, while now the least frequently visible mode of decoration, must have been originally both one of the most pleasing, and most straightforward, involving no additional materials and no other skills than the light use of a scriber or chisel. Delicate hatching occurs on foliiform blades from Vimose and Nydam I, restrained in the lower half in variously lunate areas either side of the midrib. Further to the east in Brandenburg and Silesia, it occurred on other forms laid overall.[1] Both forms survive, although in considerably diminished numbers and in a rather modified manner, well into the Merovingian period. Hatched lunate markings appear on a clearly derivative foliiform blade figured by Behrens,[2] while all-over chasing decorates the entire blade and junction of a Wendish sixth or seventh century concave angular piece from Urjala, (Finland).[3] Grave 380 at Hailfingen, dated to some time in the sixth century, included a simple foliiform blade with

1. See section II, p. 68.
2. Behrens G. (1947) p.42, abb.90(11).
3. Kivikoski E. (1947) p.54, taf.61, fig.499.

similar ornament restrained within ring and chevron scribe marks on the upper part of the socket.[1] Patterns of heavily engraved straight lines, perhaps as a substitute for richer inlays, are commonly found on seaxes like spears from sixth and seventh century Alamannic contexts, as at Heidenheim or Nürtingen,[2] often with punched ring-and-dot terminals like those from Mindelheim graves 94 or 97.[3] This seems to have been relatively common too about the same time in Frankish areas, on angular blades from Eisenach grave 72,[4] Möhn,[5] or Hantes-Wihéries.[6] A curious glaive from Charnay has something approximating to two cross fleuries in the centre of the blade, and a long line of scalloping down the edge of the flat back.[7] Undoubtedly the most impressive remaining examples of engraved work are found in two virtually identical Vendel-type spear-heads, presumably from the same workshop, from Haldalsnosi and Kvikne (Norway).[8] Foliiform blades of the type antecedent to our group A2, they display an elaborate, but by no means degenerate scheme of square interlace over the

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1. Stoll H. (1939), p.64, abb.4(4).
2. Veek W. (1931) pp.174, 262, taf.72A(1, 3).
3. Werner J. (1955) pp.36-7, taf.38(3), 39(3).
4. Böhner K. (1958) II, p.28, taf.29(3).
5. Ibidem, II, p.86, taf. 30(1).
6. Barrière-Flavy M.C. (1901) Les arts industriels des peuples barbares de la Gaule du 5-8 s., III, pl.xv(2).
7. Baudot H. (1860) pp.152-3 pl.II.
8. Liestøl A. (1955) Spjutsodden frå Kvikne i Gudbrandsdalen; Viking XIX, fig.5-7; and Oslo Museum regs.28767.

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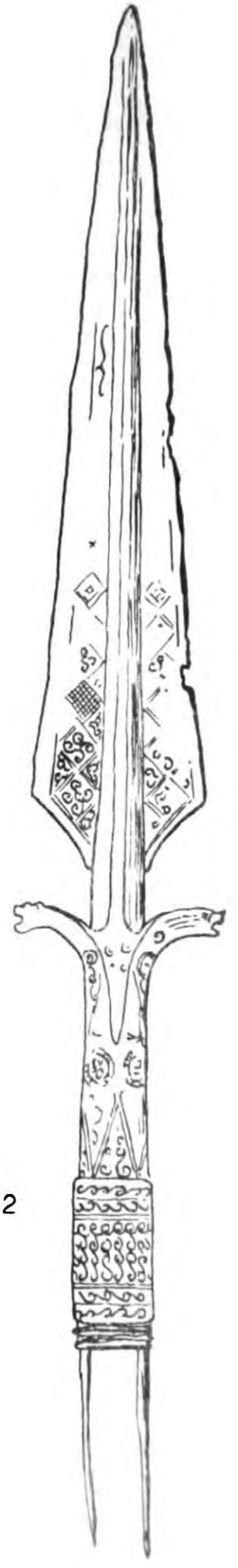

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Fig.105. Engraved spear-heads
from: (1) Haldalsnosi (Norway),
(2) Bargen (Baden).

(Not to scale. (2) after Dauber).

socket, with scroll-work extending onto the mid-rib and filling the lunate areas either side, (fig.105(1). Equally fine geometric engraving covered the entire blade, socket and binding-ring of a similarly seventh century angular lugged blade from Bargen (Baden)[1] (fig.105(2). The more usual Vendel-type is restrained to traditional lunate areas in the lower blade, bound by two or three parallel lines, and filled with etched geometric patterns, as at Vendel grave 14, Schretzheim graves 41 and 74, Reutte, Möglingen, or Hailfingen.[2] Significantly perhaps, an example from Iznik exhibits another derivative feature, with the concave curve in the profile of the leaf-shaped blade.[3]

This sort of decoration must have been quite commonly found on the continent at this time therefore, applied to blade, socket or even ferrules,[4] but much less of the insular material is preserved in pristine condition. The slightest degree of surface corrosion would be sufficient to completely eliminate such delicate chasing as that of the Haldalsnosi style, so that we could not normally hope to recognise it from the usual condition of funerary remains in insular cemeteries. Occasionally indications survive, like the simple scribe lines at the junction of the I6 example from Malling Hill, (bm 53 4-12 77) or the socket of a G3 blade from Alton (alt. oc. 952), to show what might possibly once have existed. It seems probable,

1. Dauber A. (1955) pp.385-90, abb.3, taf.39.
2. Olsén P. (1958), cf. section III, p. 112; Veek W. (1931) pp. 227, 347. fig.73(B)(1-2); Stoll H. (1939) p.48, taf.32(7)
3. Olsen P. (1958) fig.6.
4. Klindt-Jensen O. (1957) Bornholm i folkvandringstiden, p. 82, fig.64(6).

as with inlays, however, that insular decoration was never as extensive as on the continent or in Scandinavia. Not all of the engraving will have been as delicate as the Haldalsnosi chasing however, and the careful examination of fresh finds might well bring more to light. A small leaf-shaped blade from Wretton, Norfolk, shows two deep straight grooves angled on either face. It is possible that these may have contained inlaid metal at one time, but radiography fails to show any remains, and the technique is very reminiscent of the Frankish-Allemannic engraved forms of the sixth and seventh century. It is not to be expected that the seventh century "Vendel type" of lunate decoration is to be found in England, as this seems to be characteristic of a particular profile, which never became common here.[1] But clearly engaging a similar technique, is the corroded, although still visible by X-rays, pattern that decorates an angular blade from Eastry (hudd.). The surface of the blade, while pitted with corrosion, has been carefully cleaned to show straight bands parallel with the edge and extending for the whole length of the blade, filled with a simple of punched triangles apparently picked out in some black material. A flat rectangular panel in the centre of one face is shown, with the further aid of radiography, to bear an inscribed pattern of what are possibly "pseudo-runes". There is no reason why mystic signs should not merely have been scratched into the surface by their owner, or someone on his

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1. See section III, p. 113.

behalf, but the panel does seem to have been made to receive the pattern in this case. Similar allusions occur in Germanic literature, when, for instance, a mysterious witch-wife is apostrophied:

> er ðu um hauga
> hvarfar a nottum,
> grofnum geiri
> ok med Gota malmi,
>
> (Heiðrekssaga 5(20) and cf. 5(9).

Formally associated with light engraving of this kind, must be the heavier fullering found in various degrees of depth decorating the sockets and junctions of the later R series, emanating from one or two recognisably earlier pieces;[1] or at a further remove the structural fullering in the blades of spears characteristic of sixth century West Saxon forges.[2]

Inlaid decoration is much more easily recognisable, even in heavily corroded surfaces. Simple motifs, like ring-and-dot patterns or even more complex symbols, inlaid in silver or bronze had been characteristic of spear decoration throughout Germany during the Roman Iron Age,[3] and they survive in rather diminishing numbers into the period of the Migrations.[4] If the quantity and quality of production experienced something of a set-back during the confusion of the folkwanderings,[5] knowledge of the art of inlaying was by no means lost, and from the end of the fifth century onwards the Merovingian

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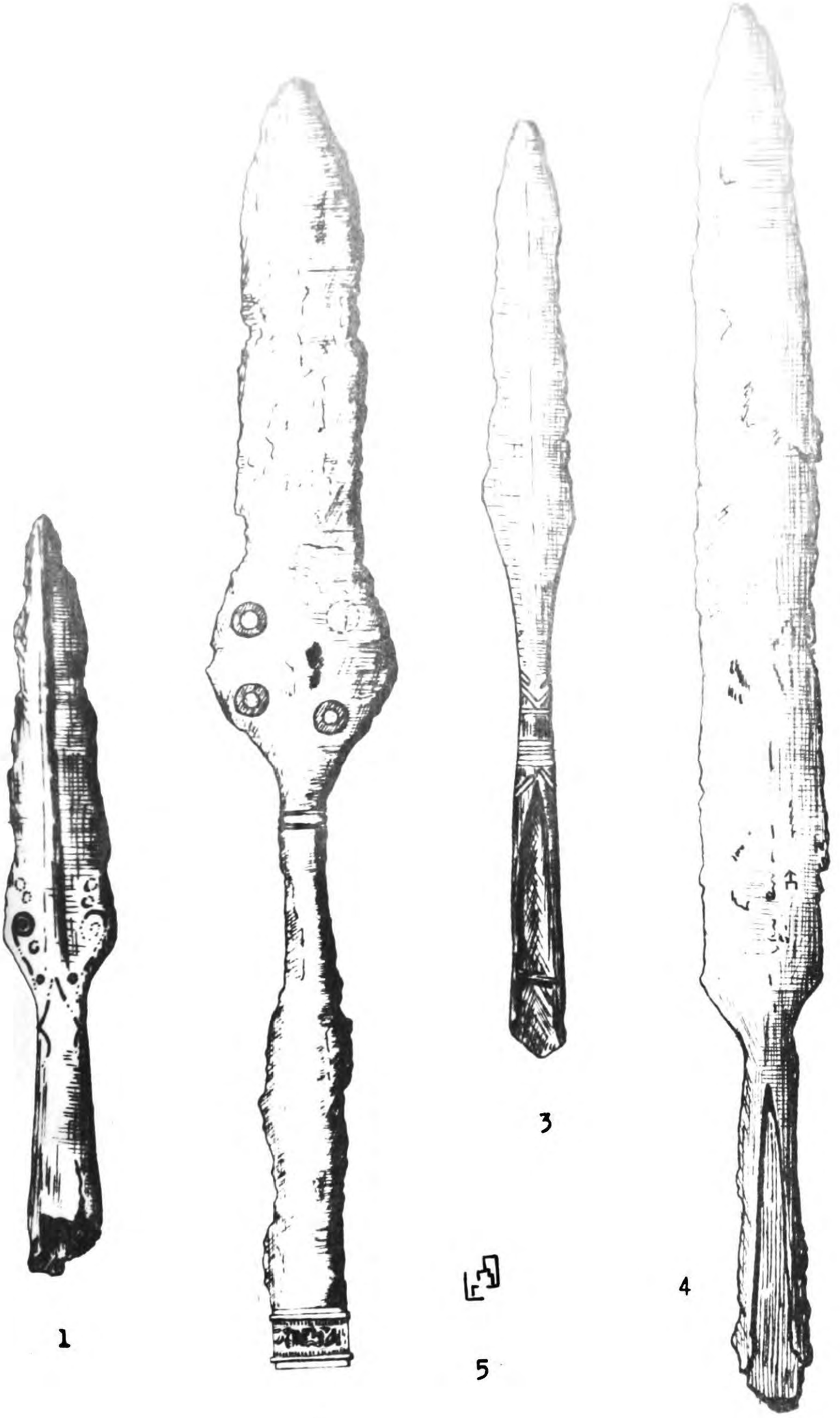
1. See section III, p. 280.
2. Series G, H and K. See section III, p. 170 ff.
3. See section II, p. 68.
4. See section II, p. 83.
5. See this section, p. 337 et passim.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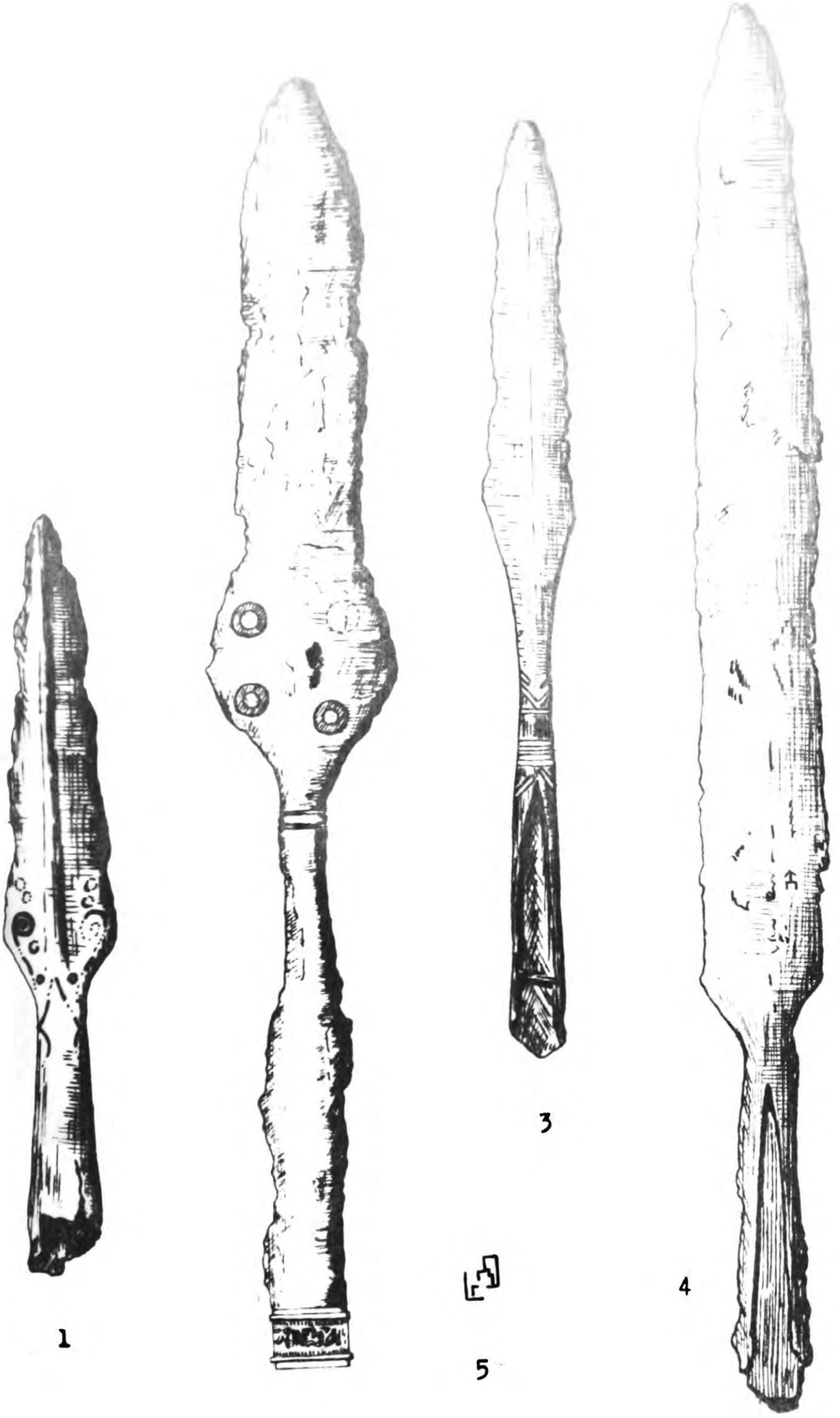
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Fig.106. Types of Early Anglo-Saxon Inlays.

(1) Basingstoke (Oakridge Housing Estat
(2) Great Chesterford gr.41.
(3) Lyminge gr. 4.
(4) Holborough gr.7.
(5) Sarre (maid 883) detail.

period sees a highly competent revival of the technique. The general methods involved have been fully discussed by France-Lanord and Holmqvist.[1] With the aid of radiography Miss Evison has been able to recognise an increasing number of English objects of iron and bronze thus decoratively inlaid,[2] and although that potentially to be seen in a large amount of "museum" iron-work will have just flaked off, clearly much more remains to be discovered.

The sort of English inlaid work seen on spear-heads falls into three roughly sequential types. (A) Traditional Roman Iron Age motifs, like the simple ring-and-dot from Vimose, were hammered into prepared hatched surfaces in a small number of blades, from, for instance, Baginton (cov(13) or Alton (alt. 1959 10⁴), while simple oval insets are found in the corners of an angular blade from (?) Bifrons (maid 893). The well known example from Great Chesterford grave 51 (fig. (106(2), usefully dated by a gilt bronze cast binding-ring decorated with a kerbschnitt design in Style I, had not only four bronze ring-and-dot motifs either side of the blade,[3] but an additional moulded band at the junction. More impressive perhaps, is an example of group A2 from a grave at Basingstoke. The pattern here seems to have been similarly symmetrical on either face: brass-outlined lozenges on the socket extending

1. Salin E. and France-Lanord A. (1943) cap. 5, passim; Holmqvist W. (1951) Tauschierte Metallarbeiten des Nordens.
2. Evison V. (1955-8).
3. A very similar example, dated to about 500 A.D., comes from Eprave (Namur); (Dasnoy A. (1954) Les premieres damasquinures merovingiennes de la region namuroise; Ann.Soc. Arch. Namur. XLVII? pl.4.

into large scrolls in the lower part of the blade; below this at the junction comes a circlet of copper, and above it, two more, one above the other, (fig.106(2). The midribbed profile, together with a weakly welded closed socket, is clearly derivative from the Nydam forms, but the form of decoration is considerably less restrained than any antecedent example. Perhaps this weapon represents an heirloom brought from some part of Germany at the time of the first migrations, but the extravagance of the design is probably more suitably the product of an emigré weapon-smith.

(B) Much more typically English inlaid ornament takes the form of one or a number of strip bindings round the socket mouth or at the junction with the blade. Radiography of another spear from Baginton (cov.(6) shows three distinct lines of denser metal at the junction, while a rather more elaborate example from grave 4 at Lyminge has rings together with chevrons inlaid at the junction in thin brass strip, (fig.106(3). More frequently, however, such applied decoration is found at the mouth of the socket. From Petersfinger grave 20 comes an example with six bands of some dense metal laid at even intervals round the mouth, with the uppermost one set apart and apparently made up of two or more wires twisted together.[1] An example from Bourne Hill has six bands[2] alternately brass and copper inlaid round the socket mouth, and the remains of three short wires across the edge of the junction. Probably the

1. Cf. the plaited wire on an example from Finglesham gr.G2.
2. Up to seven broad bronze bands encircle the socket mouth of an H2 piece from Droxford (bm 1902 7-22 93).

small numbers of other blades with grooves at this point were intended to receive inlay of this kind. Spear-heads from Dover B grave 22, and Worthy Park grave 83, have broad electrum bands, concave in section, at the socket mouth which are very similar to that encircling the junction baluster of a G2 piece from Merrow. Any raised part of the socket presented a surface suitable for some sort of decoration, and inlaid bands are commonly found here; on for instance the forcing-rings of examples from Greetwell and East Shefford (ash 1955 351), and paralleling continental examples, in a similar place on an L1 piece from Sarre.(?).[1]

(C) Rather different are two less obvious pieces of inlay, this time in the form of thin wire set into prepared grooves. A small motif clearly intended to represent a form of cloisonné was revealed in the lower part of a blade from Sarre (maid 883) (fig.106(5) very similar to that decorating a seventh century Frankish sword-pommel from Wickham;[2] and from the same century a blade from grave 7 at Holborough contained a small mystic symbol no more than 6 mm. long, representing in all probability the runic symbol tiw (fig.106 (4).[3] These must be considered to have had cryptic rather than decorative functions, and neither compare with the elaborately inscribed continental examples which survive from the Roman

1. See section III, p.236.
2. Evison V. (1958) p.244, fig.3. A similar pommel from an unknown grave at Sarre, was chased in silver, in a geometrical pattern clearly imitative of cloisonné work; (Arch. Cant. VI, (1866) p.173, note 1, text fig.)
3. See further, section VII, p. 668.

Iron Age into the seventh century, or the Alamannic blades which feature large Christian crosses.[1]

Miss Evison apparently assumes no significant chronological distinctions between the different types of inlay, but with regard to the decoration of spear-heads at least, a rough sequence is to be observed. In the earliest part of the settlements traditional motifs seem still to have been employed in the continental manner, but with considerably less frequency. During the sixth century, however, band inlays are commonly applied to the sockets of especially the more complex of insular series.[2] This is a peculiarly English development, rarely found on the continent, save where it is applied to the binding-rings of Frankish barbed darts. In the seventh century this fashion seems to have been replaced by smaller amounts of fine wire-work.[3]

It is interesting to observe that the brass which inlays the Lyminge spear-head contains a relatively high proportion of zinc, in which respect it is very similar to late Roman coinage.[4] Perhaps the Dark Age smith was able to acquire some of his materials from this source. The haunches of the

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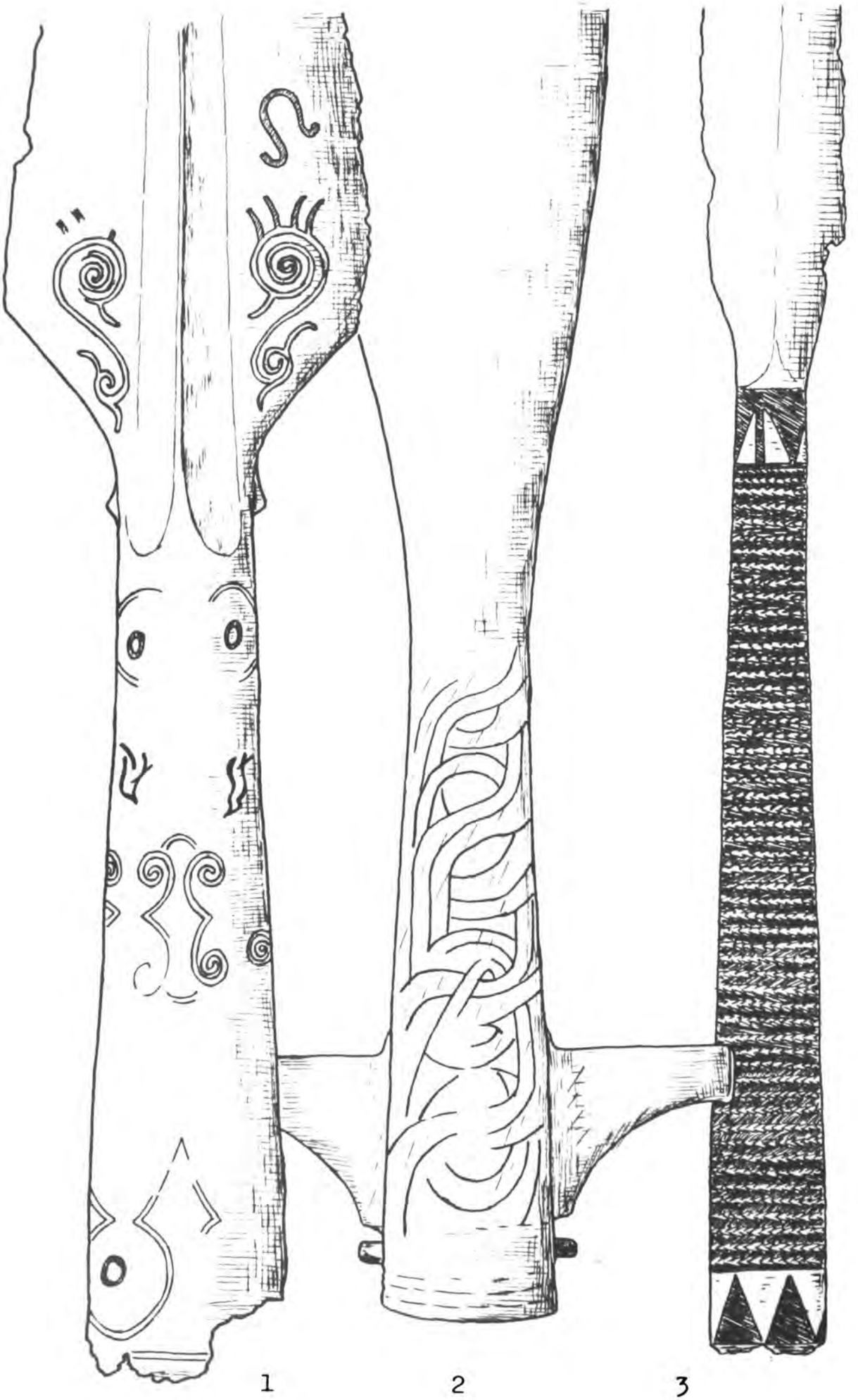
1. Ibidem, p. 669.
2. Especially the sixth century insular groups G., H and K, in which about a dozen examples occur. Eg. Burn Ground gr.6 (G3), Droxford (bm 1902 7-22 93)(H2), or Worthy Park gr. 49 (K4). The later piece from Holborough gr.7 represents one of the rare early composite-bladed weapons. Others were equipped with languets and forcing-rings, while that from Merrow features an early junction-baluster.
3. The minute nature of this latest type is probably in itself a reason why so few examples have come to light.
4. Cu. 78.4, Zn 18.4, Sn 2.0%; cf. a bronze hilt plate from the Palace of Westminster Sword: Cu 90.0, Zn & Sn together 10%; (Dunning G.C. and Evison VI. (1961) p.125).

Fig.107. Inlay styles of later Anglo-Saxon times.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boar surmounting the Benty Grange helmet appear to have been cut from a piece of Roman silver.[1]

Wire inlays, as remarked in the Old Irish Magh Leana,[2] are known to have survived into the later Anglo-Saxon period. Simple copper bands form a diagonal cross at the junction of an M2 blade from the Thames at Wargrave, while a more elaborate pattern of straight lines made up of twisted silver and copper wires is featured in the blade of a similar piece of group M1 from Egham. These restrained blade inlays might be compared with a lugged piece of Petersen's type B from Pîtres, which has a mounted cross in gold in the centre of the blade, and a further simple geometric design at the junction.[3] The Pîtres motifs are no more than 3cms. overall, and with no apparent parallels in Scandinavia, perhaps represent a continuing continental, or at least non-Scandinavian, tradition. None of the spears on which this sort of restricted ornament is seen seem likely to have survived the tenth century.

Probably the most magnificent remaining example from this non-Scandinavian group, must be one from the Thames at Brentford (tor)(fig.107(1) - an angular blade corresponding with the larger O1 group, but with the closed socket extending into a firm midrib reaching to the end of the blade. The form seems to have no parallels either in Scandinavia or Western Europe, and

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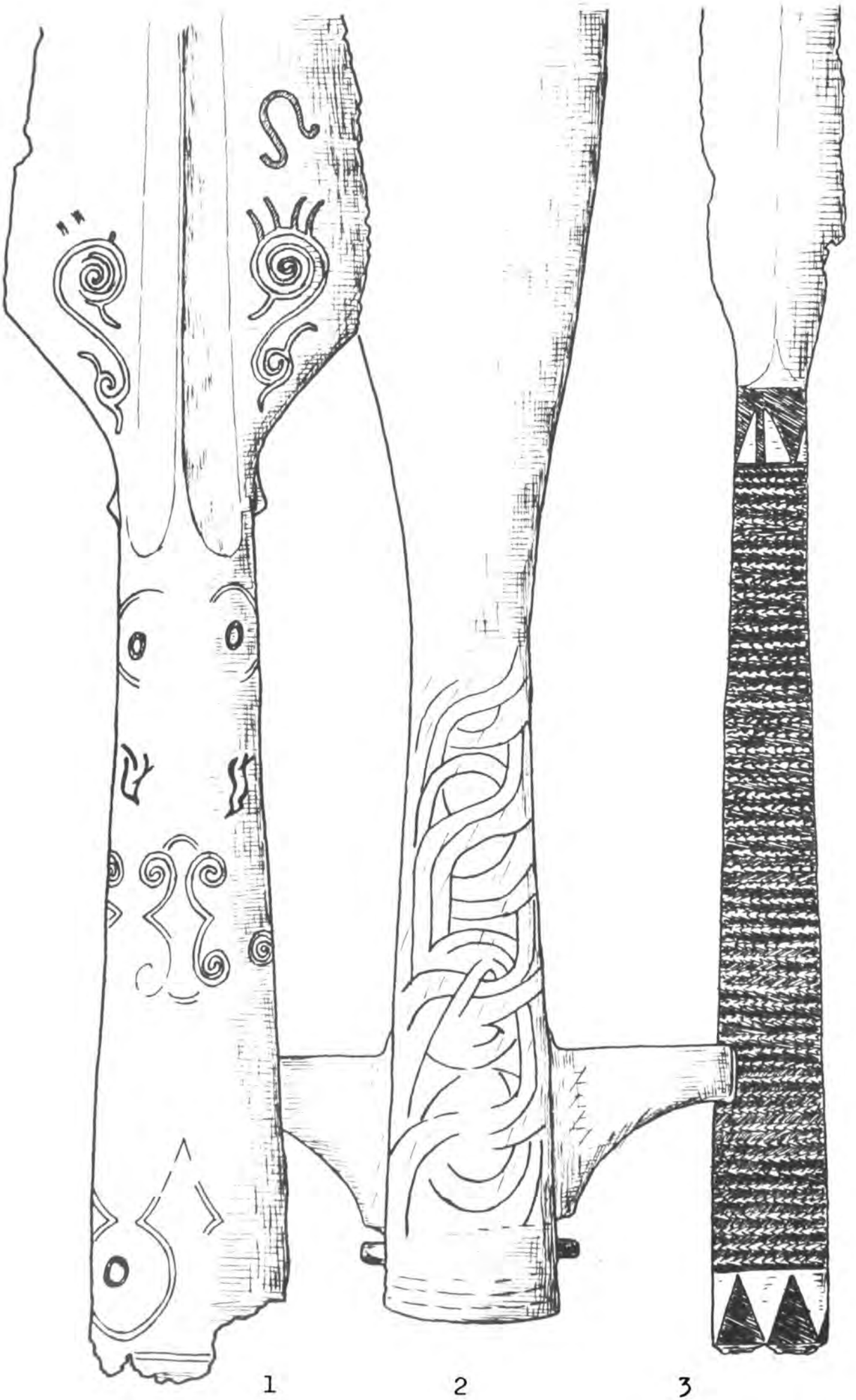
1. Ann.Rept.Sheffield City Museum, 1955-6, p.14.
2. "...thick-headed, wide-socketed battle-spears, with rings of gold upon their necks," etc. pp.112-3.
3. Coutil L. (1913) fig. p.11. Another spear from Ulm, inlaid with a cross patee in gold and silver on the lower midrib, is ascribed by Coutil to the Carolignian period, and is most convincingly seen as a survival of olderAlamannic modes of decoration: (1920 Monument Merovingian et Croix Carolingienne p.39, fig.10(21).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is as likely to be of English workmanship on purely formal grounds. The whole of the socket and the lower part of the blade are covered with the remains of a sumptuous tricolour wire inlay, which might well have originally extended for the length of the now badly corroded blade. An unparalleled "scroll" design in brass covered the greater part of the socket and lower blade. Small circlets of copper fill the centre of terminal rounds in two rows round the socket, and small copper wires radiate from the tighter scrolls in the angles of the blade, while faint traces of what are described as "birds"[1] are picked out in silver wires, in one, and perhaps two further bands in the upper socket.

This tendency towards an all-over pattern around the socket, together with the lines of twisted silver and copper wires in the example from Egham, forms a useful point of technical contact with the contemporary Scandinavian series of inlaid spear sockets. These fall into two distinct, although slightly overlapping groups. The chronologically rather earlier is usefully represented in England by a find from the Thames at London (bm 93 7-15 2)(fig.107(3). The entire length of the socket is inlaid in silver and copper; the mouth and junction encircled by a band of alternately light and dark triangles in applied sheet, with the length between made up of delicate binding with a similar light and dark effect in a fine herring-bone pattern. The technique might be studied from a small number of examples where corrosion of the iron beneath has

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1. Information from Miss A.C. Harle, of the Royal Ontario Museum

caused the inlay to rise from its seating. The binding is seen to be not continuous, but made up of separate lengths of two colour wires twisted together and hammered into prepared grooves chiseled into the surface of the iron. Lain in alternate directions they produce the familiar herringbone pattern, and in the same direction, a hatched effect. The stepped lozenges which form a line along the socket of many of these pieces, are made, unlike the sheet areas at top and bottom, by merely altering the composition of the wire at the necessary points on the circle, - a technique much like that used in patterning woven cloth or tapestry.[1] Either a thicker single wire may be used, or a double twist of the thinner one. In a small number, however, these vertical rows of lozenges have been made in the same sheet metal technique as the horizontal bands. This appears to have been composed not of a single area of sheet metal, but rather of a large number of thin strips some 2mm. in width lying parallel to one of the edges of the usually simple geometric outline, smoothed or tapped into a prepared surface.[2]

This type of decoration is found widely throughout Europe, although with a dominantly western Scandinavian distribution, where it occurs particularly on later ninth and earlier tenth

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1. First noticed by Cederschiöld L. (1941) Ett Vikingavapen från Södertuna; Sörmlandsbygden, 1941, pp.85-90, fig.p.87.
2. It is possible that where this is to be observed, it has resulted from a too sharply grooved ground surface having divided the silver sheet in the course of hammering, but in the small number of instances where a more or less pristine ground surface is to be seen, the preparation seems to have taken the form of delicate cross hatching rather than single direction grooving of a sufficiently coarse kind.

century blades of Petersen's types F and I. Well known examples from Norway occur in smiths' graves at Bygland, (Telemark),[1] or, together with top and bottom panels of angular interlace in silver occasionally picked out with copper, at Berdal (Sogn og Fjordane).[2] It occurs again on a blade from the mid-tenth century weapon-grave at Gjermundbu (Buskerud).[3] Further to the east. simply ornamented sockets of the Bygland type occur on angular blades from graves at Birka, one of which (no.644) was dated by Arabic coins of 920-1 A.D.[4] But most often in the east they include the horizontal bands of interlace in the Berdal style. On an atypically large angular piece from Enåker (Uppland) the interlace still forms a tight square pattern,[5] but most frequently, as at Suderbys or Granskogs (Gotland) or Kätorp (Öland),[6] it is looser and more rounded. This seems largely to have taken place in angular blades. A final development of this style is the introduction of zoomorphic elements into the bands of interlace, as at Ringome (Gotland).[7] This is best seen perhaps on a blade from Follingbo (Gotland)[8] dated to the later part of the tenth century, which contains a central

1. Blindheim C. (1963) figs.5-7. ; and cf. others from Nygård, (Sogn og Fjordan)(Bergen Mus. regs.6270); Åkeren or Øvre Hemmestveit (Telemark) and Røkeberg (Buskerud);(Oslo Mus.regs. C23018(b), C24894, and 28583(b).
2. Fett P. (1958) Bergens Oldsam. Til., 1958, p.3, fig.12, Cf. others from Brunkeberg (Bratsb.) Gustafson G. (1906) Norges Oldtid; Mindesmaerker og oldsager, p.103, fig.415; or Vindingstag (Opland)(Bergen Mus. regs.2943), Marum (Telemark)(Oslo Mus.regs. C29700(d).
3. Oslo Museum, regs. C27317.
4. Arbman H. (1943) pp.189, 222, 242, taf. vii(4,7,9); And cf. others from Tortuna and Rotbrusnna (Västmanland) SHM.regs. 8474 and unregs.).
5. SHM. regs. 20228.
6. SHM. regs. 16822, 5352, and 14913.
7. SHM. regs.23473.
8. Arne T.J. (1918) Tillväxten under år 1917; Fornvännen,1918p18

band of close animal interlace in nielloed silver, with herringbone wire lengths either side. Similar zoomorphic strips occur vertically round the swaged junction where they alternate with runic panels.[1]

This marks a clear overlap with a second series of decorated Viking spear-heads in which overall patterns of nielloed interlace are picked out on applied silver sheet covering the entire socket. This usually occurs together with stepped ornament around the swaged junction. A similar case of stylistic overlapping occurs in the case of a lugged blade from the well known ship burial at Tuna (Uppland) dated to about the endoof the tenth century, where the socket of the head is covered overall in the style of the second group, while the ferrule with which the shaft was equipped was banded with the earlier style of wire and stepped lozenges.[2] Generally, on the periphery of the distribution, the style seems to have become relaxed or extravagant. From grave 2 at Elkenøre in Denmark, comes an example with the normal twisted wire inlay, but with vertical lozenges and horizontal interlace picked out in outline only in silver, copper and gold;[3] but in general the initiative in these later examples of the first group seems to have been taken into eastern Scandinavia, where the second group is best developed.

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1. One word rather curiously interpreted as "kastspjut".
2. Arne T.J. (1934) pp.24-5, taf. iv(1, 8-10). It is possible, of course, that the ferrule might have been a re-used piece, but there is evidence for overlap of usage, if not of production, as with the Follingbo example.
3. Brønsted J. (1936) p. 186, fig. 96.

Examples of the second group occur in England on badly corroded blades from Burradon, Stenyning, or the River Loddon, and in better condition on another piece possibly from the Thames. (np. bm 56 7-1 1452), or a lugged piece from Braham's Farm Ely (fig.107(2). The distinctively Scandinavian style, however, is perhaps represented best from the Old London Bridge group (lm A23353), - the junction octagonally swaged and engraved with a step pattern picked out in niello, and below down the socket a boldly executed but unco-ordinated interlace of a derivative Jellinge form, probably to be placed quite late in the tenth century, and near the development of the earliest eleventh century Ringerike mode. Renewed Viking activity at about this time seems to have dispersed this form throughout their sphere of influence: to Termonde in Belgium,[1] or Paretz and Schonen in Poland.[2] This form of ornament is restricted to the later angular blades of Petersen's types G and K, and to a lesser degree, M, so that it might be considered a later tenth or eleventh century mode of ornament. The actual style, while carried out in a regular niellure technique, varies a good deal. Interlace designs clearly deriving from Jellinge forms are to be found freely over the whole of the socket surface of the spear from, for instance, Nomeland (Ned),[3] or overlain with a loose network of straight lines, either simply

1. Paulsen P. (1937). Die Wikingerlanze von Termonde in Belgien; Mannus XXIX, pp.381-411, abb.1-2.
2. Jankuhn H. (1934) Der Wikingerfund aus Libau in de Provinz Posen; Altschlesien V, p.311, taf.lxvii(1); Strömberg M. (1962), Eine Silvertauschierte wikingerzeitliche speerspitze in einer Schonischen privatsammlung; Swiatowit XXIV, pp.409-20, abb.1-2.
3. Gustafson G. (1906) p.129, fig.562.

triangular as on the Termonde example, or forming open lozenges as at Fornvi (Gästrickland).[1] In others the interlace is disposed in separated horizontal bands, either more open and rounded, or squarer and closer, and without junction-swaging or stepping as in two examples respectively from Västers and Tingstade, (Gotland).[2] Each of these varying patterns, however, seems quite in place in the period ascribed to the blades between the later tenth and earlier eleventh century, a date supported by the ship burial from grave 1 at Tuna, together with two other pieces from east Scandinavian graves, at Vedby and Hubbo (Västmanland), which horse-trappings and weapons might ascribe to roughly the same date as the example from Tuna.[3] Examples of this group are found widely spread throughout Scandinavia, in Denmark, as at Tisso (Zealand)[4], or in larger numbers in Norway, at Vovin, Bygeby, or Loiten.[5] But by far the greatest numbers are distributed in Baltic Scandinavia - eastern Sweden and Gotland,[6] with the odd example in Finland.[7]

A third and later group represents the ending of the tradition, in considerably diminishing numbers still centred in the Baltic. Weak spidery scroll-work appears as a substitute for the more vigorous interlaces of the second group in a

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1. Salin B.(1904)Vikingatidsfynd från Fornvi i Ockelbo socken Gestrickland; Månadsblad, IX p.61 fig.12-3.
2. SHM. regs.19997, 7571;226.
3. SHM,regs.20671, 15393; ascribed to the end of the tenth century by museum authorities.
4. Paulsen P. (1937), abb.13.
5. Oslo Mus. regs.15917, 7194, 10738-9.
6. For instance from: Göksbo, Villsberga or Kyrkogården (Uppland)(SHM regs.78122:1, 13581, 12753); or Kyringe and Visby (Gotland)(SHM regs. 5826, 7814).
7. Nordman C.A. (1931). p.197, fig.29.

second piece from Nomeland in Norway,[1] but this becomes much more regular in later Finnish lugged blades of the eleventh or earliest twelfth century, from, for instance, Akaa or Vesilahti.[2] Others from Finland have loose open Urness style scrolls, like those from Lieto or Kokemäki,[3] or are provided with animal head terminals as at Hakamäki in Finland or Treyden in Latvia.[4] There is some small indication that this latter development, which is no more than the introduction of generally developing animal styles, was more general than the major eastern distribution seems to suggest. While Shetelig seems to have claimed the London silver staff-mounts as Scandinavian imports of pure Urness style work,[5] Kendrick has convincingly argued an insular origin for their close parallel in the Flambard crosier.[6] In this he recognises the influence of later English manuscript art on Scandinavian styles already well established in Northumbria by about 1100 A.D. when we might assume the crosier to have been made - more or less contemporary, that is, with the Baltic series.

The technical origins of these later kinds of Scandinavian inlays, whether in twisted wires or applied sheet, are obscure. Engraved silver plates applied to hatched iron surfaces had been characteristic of objects decorated in forms of the "Jutish

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1. Gustafson G. (1906) p.129, fig.562.
2. Kivikoski E. (1947) pp.40, taf.144(1109-10.)
3. Ibid. p.17, taf.102(801), 103(803).
4. Nordman C.A. (1931) p.197-8, fig.30; Cf. also Ebert M. (1914) Lanzenspitzen mit silverplattierter Tülle; Baltisch Studien zur Arch. und Geschichte, 1914, pp.126, 133.
5. Shetelig H. (1935) Specimens of the Urnes Style in English Art of the late eleventh century; Ant. J. XV, p.24.
6. Kendrick T.D.(1938) Flambard's Crosier; Ant.J.XVIII,pp236-42, pl.lv(1); (1949)Late Saxon and Viking Art, p.118, fig.20.

style A" as early as the fifth century,[1] while engraved (?) niello patterns appeared on the socket of a spear from the Vermand warrior's grave.[2] But there is no line of tradition beyond these, which in any case do not form technically convincing antecedents.

However, single lines of twisted-wire inlays are familiar from the probably early tenth century group of Anglo-Saxon seaxes of the Keen Edge Ferry type.[3] The same form of ornament appears in the blade of the Ml spear-head from the Thames at Egham. Although this cannot be given any more than a probable relative date, it does not have the appearance of work produced by insular craftsmen in imitation of Scandinavian models. Were this the case, the overall socket design of Scandinavian blades would almost certainly have been adopted together with the techniques. Small areas of sheet silver inlaid with niello in simple interlaced motifs occur in the interstices of socket-fullering on a blade of Petersen's type E, from a probably ninth century grave at Hangvar (Gotland).[4] The herringbone style, however, appears to emerge suddenly in the later ninth century as an already mature and impressive technique. If not from England, perhaps it was introduced, like the lugged spear,[5] from Carolingian Europe, to be

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1.Hawkes S.C. (1931).
2. Pilloy J. (1886-1912) II, p.44.
3.Evison V. (1964) A decorated seax from the Thames at Keen Edge Ferry; Berks. A.J. LXI, pp.28-36.
4.SHM. regs.2309. From a grave together with penannular brooch, seax and sword; Arne T.J. (1934) p.72, fig.15. The sword is probably to be ascribed to the late ninth century; cf. Schnittger B. (1912) Fornvännen, 1912, pp.25-7.
5.See section III, p.307.

enthusiastically adopted in the north and spread generally throughout Europe during the course of Viking raids. But although there is certainly some evidence for the continuity of Frankish inlaying techniques throughout Merovingian and into Carolingian times, neither of these two particular styles ever occurs. It is equally difficult to account for the seemingly abrupt end of the engraved silver style in the greater part of Scandinavia, some time about the middle of the eleventh century. Surely there must have existed some geographically intermediary form between the Northumbrian Flambard crosier, and the latest spears of the Baltic. Moss's analyses of niello contents leaves an awkward gap at the critical stage between ninth and eleventh century material, during which time there seems to have been distinct changes in composition and manner of application.[1] Future examination of some of the large number of nielloed spear-heads, which fit so conveniently into this critical period, might help to throw greater light on the relative dates of the styles or even their origins.

While silver overlaying of the kind described seems to have been the predominant decorative feature of later Anglo-Saxon blades, contemporary literary allusions made are invariably to weapons ornamented with gold. The description by Florence of Worcester to the arms of the retinue presented by Godwine to Harthacnut in 1041[2] included: helmet, shield, sword,

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1. Moss A.A. (1953) Niello; Ants. J. XXXIII, pp.75-7.
2. See this section, p.364.

and axe, each covered with gold, so that "splendour might conceal the terror of the steel beneath."[1] In this instance the rich metal is not specifically applied to the ategar carried in addition, but there are other late references to spear-heads ornamented in this way. The single recorded instance,[2] of a particular spear being bequeathed by will, - that of Wulfsige, (1030 A.D.),:

> And ic an mine kyneloverd ii hors ond helm ond brinie ond an swerd ond a gold wreken spere.
> (Dip.Angl. 556(22).

is paralleled by the admittedly poetic gyldene gad of the angel in Solomon and Saturn (91), or the Maxim's laconic inclusion:

> Daroð sceal on handa
> gar, golde, fah. Gim sceal on hringe
> (Maxims II 21-2).[3]

It is hardly credible that gold should have been applied to a form of dart so easily lost, but actual instances of this kind of ornament do survive. Gold is found together with silver and copper picking out an acanthus-derived motif over the socket and pierced fleurette junction of a late blade from Klinte (Gotland),[4] while gold was apparently noticed on another

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1. The elaboration of how and why forms a nice latinism in William of Malmesbury's account of the same event: Gesta Regum Anglorum, II, 188.
2. Normally spears are only mentioned in OE. wills where they are included as non-particularised elements of a heriot formula. (Eg. Dip.Angl. 500.1, 505.23, 573.7). The use of garan in the tenth century will of Atheric (Dip.Angl. 517.18)seems more likely to refer to a triangular piece of land, being included appended to a list including twegra hida. Gar is in any case, an essentially poetic word, not found in prose usage and used always to denote the lighter kind of throwing spear, rather than the more impressive heavier pieces likely to find a place in a will. (See section V, p. 525f.)
3. Another instance of an apparently light blade being ornamented is found in ON hoddumroðnir oddar(Haraldzs. Hardraða, 92).
4. SHM. regs. 10194(a).

Viking spear-head from Lough Gur. In this country, gilding is found on bronze ferrules from Kingston Down grave 111 or Buxton, but the best extant example is to be seen on the facetted socket and lower blade of a blade from a grave below the Chapter House of Durham Cathedral, which is securely dated between 995 and 1083 A.D.[1] Much more fragmentary patches of gilding occur over the junction of a blade of group O1 from Hinchingbroke (camb 48 1671), while the socket of a fragmentary blade from grave 942 at Birka was fixed with four round-headed rivets set pyramidally apparently decorated in the same way.[2] In none of these objects, however, is it possible to determine whether the precious surface has been burnished into a hatched [illegible] field in the form of foil,[3] or whether it was applied in the form of water gilding described by Theophilus.[4]

Other forms of ornament are more structural, like the occasional inset pieces of patter-welded panelling. A single instance of inlaying in soft iron occurs on the socket of a spear-head of group R1 from the Thames at London (bm 83 1-12 1), where diagonal crosses are placed either side on the line of the rivet hole. This technique is well known from the Ulfberht-

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1. This is a particularly late date for a weapon to be deposited within the grave, especially in view of its close proximity to the pre-Conquest Cathedral precinct, (see section VII, p. 679). The profile too is apparently unique in the later period, and possibly this quite sumptuous object represents not a spear but the terminal of a labarum, or some ecclesiastical staff of office.
2. Arbman H. (1943) p.365, taf.9(9a-b).
3. As in the Witham sword, where the pommel had been decorated with a number of foil lozenges of a gold coloured copper alloy, akin to modern gilding metal: Maryon H. (1950). A sword of the Viking period from the R. Witham; Ants. J. XXX p.179.
4. De Diversis Artibus, III, 38.

Ingelri series of tenth century swords, where the forge name is picked out in soft iron inlaid along the fuller of the upper part of the blade.[1] The form of the inscriptions suggests an origin for this series of swords somewhere in the Rhinelands, but the technique has clearly been borrowed by an Anglo-Saxon worker in at least this one instance, as the form of the blade with split socket, beaked junction, and groups of decorative wide and narrow fullers, indicates an indubitably insular origin.[2] Similarly part of the forging process was the working up of such ornamental mouldings in iron, as the fleurette at the junction of the curious leaf-shaped, pattern-welded and bolstered piece from the Thames (bm 54 10-24 6). This blade is clearly not at home in an English setting, and the junction-moulding is very reminiscent of the palmette on the angular blade from Vendel grave V.[3] Coming from the forge no more than a raised bump, this must have been chiseled or filed into its final delicate shape. Plenty of work will have been found for the file in the finishing stages - not only for smoothing off unfinished forgings such as swage marks - but for any kind of more delicate decoration,[4] like the ornamental nicks round the socket mouth of the example from Walthamstow (lm. C.786), the tracing of patterned lugs, like those from Dorchester on Thames (ash(4), or another lugged spear-heads (bm 56 7-1 1449) vertical lines of pearling up the socket and lower blade. It is likely that this was not merely cut out of the corners

1. Ellis-Davidson H.R. (1962) pp.45-8.
2. See section III, p. 282.
3. Stolpe H. and Arne T.J. (1912) p.27, pl.xvii(1).
4. Cf. Riddle 91, where the work is to ward the slots of a key.

with a chisel, but was filed out from a raised forged line specially made for the purpose, like those running along the ridge of a blade from Horkheim (Württemberg.)[1] Delicate forging and finishing of this kind might be found occasionally at all stages throughout the period, were the conditions of preservation only adequate.

Perhaps again more akin to the jeweller's art, is the idiosyncratic form of decoration of the small group of Scandinavian spears which, like that from the later seventh century Vendel grave XII, have little cast bronze bears, in one instance at least, inset with garnet eyes, clasping either side of the lower socket.[2]

The Shaft.

The greatest length of the finished spear, of course, was taken up with the wooden shaft, but except for very small fragments preserved within the socket or ferrule of examples from pagan graves, climatic conditions in this country have resulted in the more or less complete loss of any significant remains. Of the later spear-heads, none has provided the slightest useful fragment. The size and proportions of the spear shaft therefore, are difficult to determine. It is possible to estimate the approximate diameter of the shaft at its upper end, by an examination of the socket mouth. While some later

1. Stuttgart Mus. unregs.
2. Stolpe H. and Arne T.J. (1912) p.48, pl.xxxiv(5); others occur at By i Stod (Nord-Trondelag)(Gjessing G.(1934) Studier i Norske Merovingertid, pp.55-7, fig.14); a single remaining bear on the side of a fragmentary blade; and a single example from a seventh century cremation grave at Ed. (Uppland)(SHM unregs.)

manuscript drawings depict the spear-head with an exaggeratedly wide expanded socket mouth, from which the shaft extends only thinly below, in most cases where sufficient material remains, as from the Danish bog finds, or in this country from Chessel Down, the shaft seems to have been made to fit flush with the spear-head by whittling the conical dowel of the uppermost end away from a shoulder which was to seat the end of the socket-iron. To counteract the loosening effect of expansion and contraction on the morgenceald gar the socket seating was occasionally packed with some resilient matter. Still supple fibrous material was found in the socket of an I2 blade from an unnumbered grave at Alfriston, while at Balladoyne the upper shaft had been doubly bound with a fine-weave linen. Similar fabrics occured in the sockets of blades from Basingstoke and the Thames (bm 88 7-19)52). A corroded hole in the socket of a lugged spear from Tilehurst reveals a close alternate binding of fine hair. Ferrules from Luton grave 9 and Kingston Down 129, had the remains of leather adhering to the inner sides.[1]

Complete or reconstructed shafts from the Danish bog finds seem normally to have presented a regular diameter of about 2.5 cms. throughout their lengths, although distortion consequent upon excavation may make these measurements unreliable. In grave 55 at Petersfinger both spear-socket and ferrule had the same diameter of 2.0 cms., which probably implies a regular diameter throughout, although the majority of cases where this

1. Celtic tanged spears from Castlehill were fixed with fibrous material: (Smith J. (1919) p.129).

is possible to deduce, indicate a tapering shaft towards the butt end. From grave 12 at Gilton come larger and smaller spears together with their ferrules, which show a disparity of 2.5 : 1.8 andl.8: 1.2 cms. respectively.[1] These need not have tapered uniformly however. A dart shaft from Nydam tapered towards either end from an expanded middle where it had been equipped with an amentum, although it tapered more decisively towards the unferruled butt end.[2] In grave 79 at Bifrons what the excavator took to be the decayed line of a broken spear-shaft, existed as a ghost line 3.0 cms. in diameter, down the length of the grave. The term spreot applied to certain kinds of spear seems to indicate a relatively stout shafting, but the thickness, especially of missiles, could not have been too great, as it seems to have been common Anglo-Saxon practice to carry about three at a time in the one shield-hand.[3]

The overall length of shafts presents more imponderable difficulties. The remarkable feature of shafts of pre-Migration times is their considerable length. The praelongae hastae repeatedly mentioned by Tacitus,[4] are clearly borne out by archaeological fact in the completely preserved shafts of from 1.86 to 2.92 m. and 2.3 to 2.5 cms. diameter at Vimose,[5] which seem to differ little from those regularly measuring some 2m.45 cms. and about 2.0 cms. throughout at La Tène, some four centuries earlier, which Vouga attempted to

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1. Cf. Petersfinger graves 20 and 60 (2.2:1.7 and 2.2:1.8).
2. Engelhardt H. (1865) p.27, fig.10(5).
3. See sections V, p.508f, and VI, p.583.
4. Eg. Annals, II, 14, 21.
5. Engelhardt H.C.C. (1869) p.21.

rationalise as equestrian lances, on the grounds that they could hardly have been thrown.[1] Of course, there is no reason why they should not have been merely retained in the hand in the unweildy manner Tacitus described of the Germani. At the same time, there seems to be some confusion as to quite which lengths were considered suitable at this time for which purpose. A grave at Gödaaker (Uppland) dated by an imported Roman bronze vessel to about 300 A.D., contained a barbed dart and a hand spear which had both the same lenth of shaft preserved, at just alittle over three metres.[2] A shaft from Nydam equipped with an amentum, measured just the same.[3] On the other hand, a hand spear depicted on the fourth century tomb of the consul Jovinus could hardly have exceeded 2.0-2.2 m. in length.[4] There is no material evidence for shafts of extreme length having been used at any time during the Anglo-Saxon period, however.

The depiction of weapons in Anglo-Saxon manuscripts of the later period must be considered critically as merely one part of a complete composition and perhaps restricted by the overall plan. The spear held by David in the Durham Cassiodorus of about 725 A.D., for instance, conveniently balances other lines on the page stretching easily in a diagonal line from corner to corner of its frame.[5] Drawings of the later tenth or earlier eleventh century Canterbury school, however,

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1. Vouga P. (1923) col.49, 54; and see section II, p. 44.
2. Eckholm G. (1925) pp.326-46, fig.171.
4. Boulanger C. (1905) p.xx, fig.6.
3. Engelhardt H.C.C. (1865) p.27, fig.10(5)
5. Reproduced by Rickert M. (1954). pl.10A.

as in the Harley Psalter MS. 603, while less formally restricted, suffer from other dubious elements. All the weapons throughout this manuscript seem to have been drawn on a slightly exaggerated scale in proportion to the figures carrying them. Spear shafts are put in with a single stroke of the pen, and this is easily lengthened by the odd quarter of an inch which then appears to add more than two or three feet to the whole length. The illustration to Psalm VII, (fol.4)[1] depicts a group of warriors in line, the middle men carrying spears half again as long as themselves; but the two men flanking either end are given spears twice as long as themselves, apparently because there is more room for the artist to move his pen to give a balanced appearance to the group. In the same folio another warrior carries a sword and a bow, with two arrows some five sixths his own length. On other folios, like that illustrating psalm IX,[2] there appears to be no distinction made between the lengths of thrown darts and spears retained in the hand. This distinction is apparently quite clearly made in the Bayeux Tapestry however.[3] In the more painterly manuscripts of the earlier Romanesque schools, however, where the larger hand spears are shown, they seem to be invariably just a little longer than the bearer.[4] But that at the same time, or at least a little earlier, that shorter staffed spears were in

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1. Ibidem, pl.32.
2. fol. 56v, Ibidem, pl.33
3. For instance, Stenton F. (1957), pl.63.
4. The second hand of the Harley 603 Psalter, clearly influenced by Romanesque styles, equips his Goliath figure with a spear over twice his own length, but this was probably considered only appropriate to the giant. Fol. 73v. (Reproduced by Hewitt J. (1855) fig.33).

use is shown by the warrior of the Book of Kells (fig.110(3) from a page where no unnecessary cramping seems to have been involved.

Some indication of the entire length of spear shafts may be deduced from the record of carefully excavated pagan graves. Where a ferrule is found to shoe the butt end of the spear shaft, it might be supposed that the distance in a straight line between this and the head as placed in the grave, should represent the length of the shaft. In grave 1 at Harwell or grave 3 at Prittlewell,[1] for instance, ghosts or shadows of the wood remained down the length of this line to give perfectly acceptable lengths of 1.64 and 1.83 metres respectively, but in other cases such evidence may be less reliable. There is some indication that many spear-shafts were broken before burial, perhaps with some ritual intention, perhaps because they were too long to fit into the grave-pit which would rarely have been dug much longer than the body it was meant to receive. This consideration might account for the distorted condition of some of the spear-heads found. In some instances, the blade had been forcibly driven into the soil at the head of the grave, presumably in order to fit the entire length into the pit. Others, where the head had been bent in half or was found "leaning at an angle against the corner of the grave", probably needed merely the pressure of a foot to force it into position. These, like the graves, were probably just a little longer overall than the person buried.

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1. Cf. Bifrons graves 65 and 79.

Perhaps broken lengths would account for the general scarcity of ferrules, but there seems little reason to have discarded the remainder of the weapon rather than bury it with the rest. In any case ferrules seem to have been confined largely, as on the continent, to just the better made weapons. It is possible that such broken lengths were occasionally replaced in the grave overlapping in the original direction, but for the purpose it may be assumed that ferrules found on the same side of the skeleton as the head, and in direct line with the socket of the head, represent acceptable lengths.[1] Only some two dozen cases have been recorded with measured lengths, but the majority of these vary between 1.56 m. at Mitcham grave 17, and 2.16 m. at Petersfinger grave 20.[2] These lengths we find to be generally just a little longer than the person with whom they were buried,[3] and at the same time usually just the length of the grave. What we have therefore is evidence not for the length of some spears, but for the shortness of some spears. Others with no recorded measurement, but where the spear-head is found by the skull and the ferrule by the foot, might similarly be assumed to have had just the length of the buried person, or perhaps a little

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1. In some cases where the ferrule is found at the left foot and the head to the right of the skull, for instance, the shaft may have crossed the body diagonally, but in no instance is there any proof of this in the form of a "ghost" line.
2. Eg. Abingdon gr.22, 1.92m.; gr.49 and 55, 1.79m.; Cassington gr. 1, 1.83m; Chessel Down gr.0, 2.17m; Driffield gr.2, 1.91m; Gilton gs. 10 and 12, 1.83m., gr.28, 2.17m.; Holborough gr.7, 2.17m., gr.8, 2.32m.; Holywell Row gr.15, 2.07m; Lyminge gr.1, 1.65m.; Peterfinger gr.60, 2.01m.; Riseley gr.75 and 88, 1.72m.; Stone gr.4, 1.98m.
3. An exception occurs in grave 1 at Lyminge, where in a singular case, the spear measured 1.65m. that is some 17 cms. shorter than the man.

more.[1] This seems to be corroborated by such continental evidence as there is.[2]

But if there is no possibility of determining whether certain spear shafts used were very much longer, there is clear indication that some were made much shorter. Grave 138 at Guildown, containing the skeleton of a child, was equipped with a ferruled dart measured at 1.37m. and 2.5 cms. greater than the child's length. The spear-head belonged to group J1, which might normally be considered to equip smaller missiles, but this form might have been given to the child as more suitable to his size. In graves 127 and 136 at Kingston Down, with the skeletons of specifically "old men", Faussett records the burial of a pilum in each case only 1.22m. long; and similar instances might be assumed from grave 97 at Gilton, and 70 at Bidford, measuring 1.07m. and 1.3m. respectively. In none of these instances where the spear has been buried with an adult, however, does the head remain to determine whether it might have been used as a missile rather than a hand spear. This seems probable, however, if Fausset's "pilum" is a reasonable description, together with the length. The best instance is that from grave 12 at Gilton which contained two

spears and two ferrules:- one described as a hasta measuring 1.83m., and the other a pilum at 1.37m. There are too few "sets" of this kind, however, unlike in Scandinavia, to support this indication of a distinction between lengthier

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1. For instance, in Abingdon gr.69, Bifrons gs.37, 43, 73; Brighthampton gr.2; Kingston Down gr.163; Lyminge gr.4; Marston St. Lawrence gr.29; North Luffenham gr.1; Petersfinger gr.21; Sarre gr.3; Sibertswold gs.74,88,102;Standlynch
2. For instance Stoll H. (1939) p.31.

heavier hand spears, and shorter lighter darts. In this case the actual blades are no longer identifiable, but where they are, only in one instance in which the shaft measured roughly the length of its bearer, was the blade recognisably that of a missile - a barbed dart of group L1 from grave 69 at Abingdon; although those from Sibertswold graves 88 and 102 are also described as pila. The majority range over all the larger forms of lengthy angular and foliiform blades.[1] Perhaps significant, is the occurence from grave 56 at Guildown of a blade of the derivative Nydam style group A2, with a shaft of no more than 1.88m. long, albeit some 18 cms. longer than its bearer. This illustrates clearly the lapse of continuity in respect of shafting between the later Roman Iron Age and post settlement times. While occasionally, specifically lonsceaftum sperum are met with in the literature,[2] it seems likely that the majority of spears, both hand-spears and darts, were supplied with much shorter shafting than their continental predecessors.

The correct choice of shafting material would have been of importance, and it seems clear from the ON. specification of vigr vestroena, which are placed on a par with "Frankish swords",[3] that certain woods were to be preferred above others. While

1. I5 at Gilton gr.10 and Petersfinger gr.20; B3 at Gilton gr.28 and Prittlewell gr.3, F5 at Driffield gr.2 and Lyminge gr.1. The singular sections of groups H1-2 occur on shafts of this length in graves 49 and 55 at Abingdon, and Brighthampton gr.2
2. "We hit ða unsofte mid strælum and eac mid longsceaftum sperum ofscotadon and hit ofslogon and acwealdon" (Epistle of Alexander, 362). This is a curious apposition of verbsand nouns, unless "shoot" is taken in conjunction with "arrows", and the "long-shafted spears" with "slay and kill". Elsewhere, specifically lang sceaftas are associated with sweopan (eg. Sol. 120-2).
3. Haraldzs. hárfagra, 18 (52).

fragments of wood are often actually preserved within the sockets of many of the earlier spear-heads, their close proximity to decaying iron results in the fibrous structure being permeated and often entirely replaced by ferrous salts, so that the detachment of test specimens is made difficult, and their identification rarely possible. Enough evidence is available, however, to give a fairly clear picture.

No other wood than Ash (fraxinus) was recorded from the excavations at La Tène,[1] but further to the north at Hjortspring while heartwood Ash is by proportion obviously the most popular, bough pieces of both Rowan (sorbus) and Birch (betula) are recognisable.[2] Similarly Ash figures almost exclusively in northern finds of the Roman Iron Age, as at Gödaker,[3] Vimose,[4] or Nydam,[5] although a probable fragment of Oak (quercus) shaft is recognisable at Esbjøl.[6] Into the Merovingian era, Salmo indicates, although without citing specific evidence, the continuing popularity of Ash, while suggesting too the possible use of Lime (tilia), Aspen (populus) or Apple (pyrus).[7] At Kvikne, however, Birch is certainly identified from the late seventh century.[8] Further south, Ash seems to have been used in at least one or two instances in material from the Alamannic cemetery at Oberflacht.[9]

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1. Vouga P. (1923) col.54.
2. Rosenberg G. (1937) pp.46-7.
3. Eckholm G. (1925) loc. cit.
4. Engelhardt H.C.C. (1869) p.21.
5. Analysis 1964.
6. Information from M. Ørsnes (Copenhagen).
7. Salmo H. (1938) p.254.
8. Liestøl A. (1955) p.90, fig.3.
9. Junghans S. (1958) Württembergisches Landesmuseum; Vorund frühgeschichtliche Sammlungen, p.19.

In this country where plentiful supplies of good quality Ash timber were easily available,[1] such evidence as there is suggests very much the same pattern of use as on the continent. Baldwin Brown asserts, although without details, that analysis had shown the predominant use of this wood in instances presumably from excavations prior to 1915.[2] More recent excavations have provided a small amount of material for analysis which merely repeats the evidence. Ash was found shafting small-bladed spears, like those of group I2 from Chatham Lines grave 16, Oliver's Battery or Wheatley (ash 1883 21(b); or on a profile of group F1 from Blockley gr.1. It was found similarly shafting much larger blades, like that of group I5 from Readon Hill, or F5 from Lyminge gr.5. Ash was identified too in a large number of separate shaft pieces, not ascribable to any particular blades, from Chessel Down.[3] Rather later, it is recognisable from the socket of a large lugged pattern-welded weapon from the Thames at Tilehurst. Hencken records Ash as a shafting material throughout the period of occupation at Lagore Crannog (Co. Meath), most significantly from stratified examples

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1. Ash is outstanding among British timbers for its strength, flexibility and lightness. The fact that grown over the chalk and limestone of English downlands it achieves an extraordinary hardness and strength, may possibly account for the apparent reputation of vigr vestroena. It cannot be supposed that ash groves were planted especially for the use of weaponsmiths, but useful sources of such timber are probably recorded in the place names Gargrave or Shaftsbury,(Smith A.H.(1956) English Place Name Elements, I, p.194, II, p.99).
2. Baldwin Brown G. (1915) III, p.240.
3. Ash was also identified from the sockets of spears from pagan graves at Chatham Line gr.1, Coombe Bissett, Gilton gr.5, Lancing gr.(2), and Northfleet. At Brighthampton gr.13 wood from the lower part of the shaft remained adhering to the shield boss.

belonging to the later seventh or eighth century, and in a rather later pattern-welded piece.[1] Oak is recorded in one instance from the socket of a spear of group C3 from Woodingdean, while an Alderwood (alnus) shaft is mentioned from Brettenham. The singular occurence of hazel rods in male graves at Selby[2] unaccompanied by any other goods, is no doubt to be given some other explanation than that of weapon-hafting, although withies seem certainly to have been used for some kinds of lighter darts.

There is some literary evidence for the continuing use of both Ash and Oak throughout later medieval times, with, during the time of the Crusades at least, the additional use of a kind of cane or reed to shaft the lighter lances or darts.[3]

In Anglo-Saxon times literary evidence supports the conclusions drawn from practical analysis. The especially tough and elastic properties of fraxinus excelsior are recalled by Byrhtnoð's wacne æsc,[4] and the common use of this word in the texts to describe both the heavier hand spears as well as the lighter æscholt garas or daroðæscas[5] merely parallels the predominant use of the wood. The use of æsc to denote "spear" is confined entrely to poetic contexts in OE., but the linguistic implications of this pars pro toto usage, together with its Germanic and Romance cognate forms, suggests a very early

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1. Hencken H. (1951) Lagore Crannog; Pr.R.Irish Acad., LIII(c) pp.95, 98.
2. Ann.Rept.Yorks.Phil.Soc., (1876) pp.19-26.
3. Radulfus Cadomensis, Gesta Tancredi, cap, 34; Itinerarium Peregrinorum et gesta Regis Ricardi, IV (8); Merlin, 390; Ambroise, L'Estoire de la Guerre Sainte, 5652.
4. Maldon, 43.
5. See section V, sub æsc.

origin. There is in addition some rather slighter linguistic evidence for the use of lighter reed material to shaft certain of the lightest forms of darts.[1] Harundo is once rendered by the Prudentius Gloss (27.7) as fla, while Jerome's harundinem stands in the Lindisfarne Matthew (XI 7) as gerd ond puulsper. Similarly OHG. pfil is at least once given as pilum arundo.[2] The rarer form wigar (ON. vigr) is probably to be ultimately associated with Cymr. ghuyge "flexible twig". It is interesting in this context, to note the occurence at least twice in ON. literature.[3] of the device of a reed which turns mysteriously and fatally into a spear with the intervention of Odin. Charmed withies are used to shaft victorious spears in the O.Ir. Agallamh na Senorach.[4]

Most shafts will probably have been simply finished off with smoothing or polishing along the length and with rounding at the butt end as during the Roman Iron Age, but others were certainly equipped with additional fittings. Of these a ferrule at the butt end designed perhaps for use,[5] but probably to keep the grain from splitting, seems to have been the most common. Ferrules of various simple kinds are sporadically found from La Tène times[6] onwards, although they seem to occur only

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1. cf. Petrie W.M.F. (1917) Tools and Weapons, p.33.
2. Cited by Bosworth and Toller, sub pil.
3. Gautrekss. Konungs., 7; Styrbjarnar Dattr, 72.
4. p.110
5. See section VI, pp. 578, 635.
6. Vouga P. (1923) col.56, pl.xiv(15-22); most take the form of a tanged button or spike like our group (i), but with the rare instance of a conical folded piece of iron like our group (a); cf. Eichorn G. (1927) Der Urnfriedhof bei Grotzromstedt, p.89.

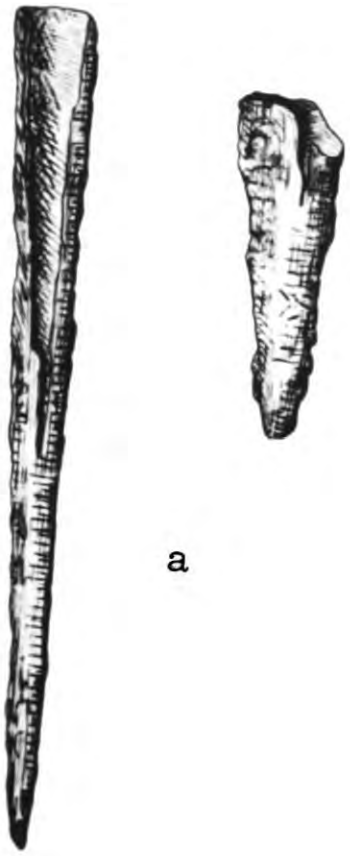
rarely in sites of the Roman period, and there is no recorded instance whatever from the great Moss deposits of the north at this time.

The relatively small numbers recorded from Anglo-Saxon cemeteries might be due to the fact that so many were excavated at a period when little enough attention was paid to the spear head itself, so that small fragments of nondescript iron were very likely passed over. In the reports of many excavations the terminology used is by no means precise, and the word "ferrule" occasionally denotes "socket" and vice versa. But in many competent and recent excavations where a particular search has been made for any sign of the ferrule's existence, none have been found.[1] Perhaps the scarcity is to be accounted for by the shaft's being too long for the grave, and therefore broken before deposition, but it is not likely that the extra length will have been left outside the grave in such large numbers as to account for this. The use of ferrules covers the whole of the period of settlement in England, found accompanying the early A2 profiles from graves at Guildown, as well as later profiles from cemeteries like Holborough or Kingston Down. Perhaps their use was restricted to certain classes of weapons, or more likely, confined to the more expensive weapons. Of the six spears grouped together at Sutton

1. For instance in Group Captain Knocker's excavation at Snell's Corner, Horndean or Wilkinson's at Barrington A. Griffith notes that at Barrington "only one ferrule was found among so many spears, and no doubt the spear in question was taken as spoil from a Bedfordshire Saxon". (Ssx.Arch.Colls. (1925) LXVI, p.223, n.4) In fact there is no such significant geographical distribution of ferrules in general.

Fig.108. Types of Shaft Ferrules.

(a) Mundford & Chessel Down (bm 69 10-11 49). (b) Acklam Wold. (c) Barfriston gr.43 & Kingston Down 111. (d) Gilton gr.10 & Barfriston gr.30. (g) Howletts (bm 1936 5-11 160). (h) Fetter Lane, London (gm 65) & York. (j) East Kent (liv(73 & 74).



a

b

c

d

g

i

h

j

Hoo, only three were equipped with ferrules.

Rarely an example is found on one of the small foliiform blades, like the small J1 profiles from graves 27 and 41 at Dover B; but like inlays, languets, binding rings and other additional fittings, a relatively high proportion seem to be found on blades of series F, G and H , when compared with their smaller numbers. Of course others are found on larger angular and foliiform blades of the B, E or I series, but in relatively lesser numbers when compared with their greater incidence. While there seems to be therefore no restriction of date or application, by far the largest numbers come from the south east, and particularly from East Kent. With these restricted numbers certain of the forms, like some of the spear-head profiles, might be attributed to the workshops of particular weaponsmiths. Group (c) for instance is characteristic of East Kent cemeteries, and particularly Kingston Down with seven out of the twelve known examples, while group (d) is entirely confined to Gilton.

This sort of highly localised distribution for at least some of the forms, indicates that some sort of formal division may be valid in itself, apart from its merely descriptive value, although there seems to be no correspondence between particular groups of spear-heads and ferrules. The forms break down into about a dozen shapes: (fig.108)

(a) The most frequently found form is a simple folded cone of sheet metal either welded along the seam, or more usually, cleft in the normal manner of spear-head sockets and fixed with

a single transverse nail. Most measure about 9.0 cms. in length but they vary upwards from very small rounded examples like those from grave 41 at Dover B. accompanying a J1 profile, or from Cassington grave 1 with an I2 profile, both of which measure just about 5.5. cms. An even smaller example in bronze measuring 4.5 cms. equipped the shaft from grave 4 at Staxton. Another curious bronze examples comes from Exning, apparently made up of two parts seam-jolted together. Rather larger examples are found to accompany proportionately larger spearheads. Exceptionally large ferrules measuring about 19.3 cms. accompanied an A2 blade from Guildown grave 56, and an I5 blade from Sarre grave 240. Normally this form is found to accompany larger blades of the B, E, F and I series. It also occurs in a single instance with the late R1 piece from Bracebridge. Although rare at La Tène, this form is the one normally found in the rare Celtic and Roman cases, and extends right through the Anglo-Saxon period to the time of Flambard's crosier about 1100 A.D.[1]

(b) This, like each of the remaining groups, is relatively infrequently found by comparison with that already described. This takes the form of a simply folded piece of metal, as before, but much smaller, forming a short open-ended tube or band. This would have served equally well as the former type to prevent the grain from splitting, but could hardly be planted in the ground, which it must be assumed was an important

1. Kendrick T.D. (1938) p.237, pl.lv(2c) And cf. the twelfth century representation in the Ramsey Bede Apocalypse; St. John's Cambridge MS. H6 fol.ii(v); reproduced by Rickert M. (1954) pl.77.

feature of the ferrule's military use. The curiously bellied example from Acklam Wold is typical of the group in its size, but others are much smaller. One from Cambridge (ash 1886 1384) associated with a spearhead of group F3 took the form of a simple band no more than 2.0 cms. high. (It is significant of the generally indiscriminate use of ferrules, that a spear-head of the same group and size from a presumably contiguous grave in the same cemetery (ash 1886 1385) was equipped with an (a) type ferrule some 8.5 cms. long). An example of this group from grave 129 at Kingston Down took the form merely of a narrow strip of bronze, 0.5 cms. wide fixed to the wooden shaft by means of three bronze pins through a leather inner binding; the entire diameter of which was a particularly broad 4.0 cms. Similar too, might be assumed that from grave 149 at Sleaford; a band of bronze, bent over and rivetted with iron. While only some half dozen examples are known from Anglo-Saxon graves this simple form of ferruling is likely to have had a long subsequent history, although not of a significant shape to be recognised from, for instance, later manuscript drawings.

(c) This is basically the form of the previous group, - a simple open-ended circular band, but now has the addition of an iron spike penetrating vertically both in the interior to hold firmly within the shaft butt, and on the exterior, probably for seating in the ground. The spike is hardly sufficient to have had an offensive purpose in itself. Most seem to be made up of a bronze band, of varying size, and a

proportionate iron spike. An example from Barfriston grave 43 was decorated with horizontal fullering, while a smaller piece in sheet bronze from Kingston Down grave 111 was gilded.

Of the odd dozen known examples, each was found in graves from the later series of Kentish cemeteries. Seven come from Kingston Down: (graves 111,127,136,163(two), 164 and 244); while single pieces come from Barfriston grave 43, Watts Avenue, Rochester, grave 31, Sibertswold grave 136, and Strood (bm 94 8-3 82). The last of these accompanied a spear of group C2, while most of the others although unidentified, were found together with what Faussett described as pila, save for one of the two examples in grave 163 at Kingston Down, where one must have equipped the hasta. The terminology is dubious, however, and the odd dozen examples are hardly enough to prove a conclusive association with smaller blades. This sort of ferrule will perhaps have been used for other objects. The gold knife-handle from Faversham seems to have been fixed in this way, with the spike penetrating inwards only. The form is found occasionally too on the continent, as in, for instance, grave 3 of the Langobardic cemetery of Poysdorf.[1] There is no indication of either an early or a late date for this form within the Anglo-Saxon period, although it is seen as the terminal of a spear in the Book of Kells (fig.110(3), and occurs as late as the ninth century in St. Gall MS. 1395.[2]

(d) A group known certainly only from Gilton, - graves 10,

1. Werner J. (1962) Langobarden in Pannonien. fig.3(b).
2. A spear held by Longinus, St. Gall MS. Cod. 1395; reproduced by Westwood J.O. (1868) pl.28.

12 (two) and 88, is made up of cast or hammered bronze in the form of a closed tube with parallel sides and a conical end. The first was associated with a large spear-head of group I5, but those from grave 12 seem to have been equipped indifferently both hasta and pilum, with appropriate diameter bores. It is possible that the fragmentary piece from Barfriston grave 30 belongs to this group, but in the absence of an adequate description it is as likely to belong to group (j).

(e) This form seems to be confined to a single known example from the Viking grave at Ballinaby. Similar in make-up to those of group (a), this takes the form of a rod with a spatulate end, forged into a simple solid round-sectioned spike with a shallow cup-like socket at the upper end, some 16 cms. long in all. This is probably the form represented on Edward the Confessor's staff in the Bayeux Tapestry.[1]

(f) Another unique form recorded from Petersfinger grave 21, but slight enough to have been overlooked in other instances, - a round flat stud, some 2.2cms. in diameter and 0.15 thick, presumably nailed into the butt; but the object is now missing, and this is now no longer possible to determine with certainty.

(g) A particularly complex form was made up of a delicate iron cone incorporating a sphere half way down its length. This is first found in a single exampe from a grave

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1. Stenton F. (1957) pl. 31.

of the pagan period at Howletts (bm 1936 5-11 160), just some 5.6 cms. long. This piece is particularly delicately made, with the welded iron cone barely penetrating a fine hollow sphere. During the later part of the period manuscript drawings frequently represent staff or crosier ferrules of a particularly complicated kind, like that from the tenth century Sherbourne Pontifical,[1] which might be assumed to correspond to this form. The same sort of ferrule, but larger, and made up of two solid, rather than one hollow, spheres, is found in the early twelfth century Rufus crosier of Durham Cathedral, paralleled by a similar piece in bronze from a twelfth century grave at Villeloin.[2] Manuscript representations contemporary with these show this complicated form to have been relatively common on shafts of all kinds.[3]

(h) A form closely associated with the previous type:- a graduated cone, truncated and extending into a simple sphere below. These are most frequently found in bronze, when they are often described as drinking-horn terminals. This is likely to have been the case in some instances, like that from London (gm 65) which contains a fragment of the horn it originally mounted. They are most often made in smoth cast metal, but one from York is made out of sheet, with the sphere hammered

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1. Bibl.Nat. Paris MS. Lat. 943 fol. 5v; reproduced by Rickert M. (1954) pl.23.
2. Kendrick T.D. (1938) p.242, pl. 1v(2a).
3. BM, MS. Tiberius C vi, fol. 14v; and Nero C iv (reproduced by Thompson E.M. (1895) English Illuminated Manuscripts, pl.9) and cf. Harley Roll Y6 (Rickert M. (1954) pl.95b).

into a series of bosses, with horizontal furrowing above. This was apparently found in association with the late cast bronze socket piece of group T. Similar forms had occured occasionally since pre-Roman times on the continent,[1] while Xiphilinus describes what must be the same thing among the Celtic inhabitants of Britain.[2]

(i) Another form found commonly in La Tène times, although considerably rarer later, takes the form of a facetted spike or cone, fixed into the butt of the shaft by a shouldered tang. Presumably the shaft at this end will have tapered to fit flush with the section. Several examples are known from this country, as at Letchworth or Canterbury, but only one from a definitely Anglo-Saxon context, - from grave 137 at Dover B, where it equipped a small blade of group Il. The form is paralleled from Dark Age Lagore, however,[3] and occurs in Frankish contexts like those from graves 458, or 506 at Rübenach.[4]

(j) A series of facetted cast bronze terminals. The most complex is that equipping an F3 blade from grave 26 at Long Wittenham (fig.43(3): a facetted hexagonal flat foot, circular in section above, furrowed with groups of rings, and at the mouth above, six triangular ears, the whole fixed to the shaft by a single iron nail. Two other pieces included in

1. Eichhorn G. (1927) pp.89-91.
2. "..a brazen spear-ferrule, the size of a crab-apple, which shaken, terrified the enemy with its noise"; p. lx (g).
3. Hencken H.O. (1950 p.98, fig.32 (382).
4. Bonn Museum, unregs.

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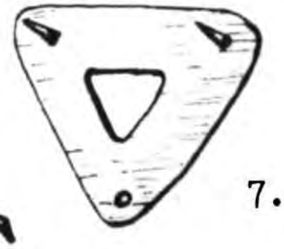

7.

6.

Fig.109. (1-2) Amenta from: (1) Nydam and (2) Thorsbjerg (after Engelhardt).
(3-4) Scenes from Vendel helmet-plates.
(5-7) Shaft-mounts from: (5) Harnham Hill gr.24; (6) Kingston Down gr.136; & (7) Kingston Down gr.136.

the Faussett material from East Kent, (liv.(73-4), probably correspond to those from graves 98 and 108 at Sibertswold, the former equipping a barbed dart. The shorter is hexagonally, the longer octagonally, facetted below circular grooved sections. Both are open-ended and were originally fixed by a clenched nail driven vertically upwards through the open end.

Other small incidental pieces of equipment might have been added to the shaft in a small number of cases. The use of various binding-rings about the socket or upper end of the shaft, has already been considered,[1] but others might have adorned the: beam on holte....guðwigan, hyhtlic hildewǽpen, hringe beġgyrded.[2]

The amentum indicated on some missile shafts by raised bronze nails used to fix the knotted cord at the middle point of balance , as found in well-preserved examples from La Tène to Thorsbjerg and Nydam (fig.109(1-2)[3] is found continuing well into Merovingian times at, for instance, Charnay (Saone-et-Loire) or Misery (Somme).[4] While no actual example of the amentum has survived in this country, what may be appropriate shaft fittings occur from several graves. At Kingston Down five instances of what Faussett describes as pila were

1. See this section, p.378.
2. Riddle 92, 1-5.
3. See section II, pp.44, 72.
4. Baudot H. (1860) Sepultures des Barbares découvertes en Bourgogne; Mem.de la Commiss. Arch.de la Cote d'Or V, pp. 150-2, pl.III(1-3); Rigollot M. (1850) La race teutonique qui envahirent en Gaule au Ve siecle; Mem.de la Soc.des Antiqu. de la Picardie, X, pp.205-6, 217. And cf. Cochet J.B.D. (1854) La Normandie Souterraine, p.369; and Durand (l'Abbé) Notice sur des tombeaux découverts à la Hogue; Mem. de la Soc. de Antiqus. de Normandie, XII, p.329

apparently fitted with bronze studs or plates nailed to the middle shaft. That from grave 136 took the form of a simple single rectangular bronze mount (fig.109(6), that from grave 137 six clenched staples, while those from graves 164,173 and 178 were equipped variously with up to five nailed plates. From Harnham Hill grave 24 an F3 profile spear had a moulded diamond-shaped bronze plate nailed to the shaft (fig.109(5), which is paralleled by another in iron from an unnumbered grave in the same cemetery, a silver-plated bronze one from Dover A, and another from Bekesbourne. What is probably another, came from Sibertswold grave 91. If these did not in fact fix the cord or thong of a legitimate amentum to the shaft, they probably marked the point of balance of the missile. They are probably represented thus in the (?) ninth century Irish Psalter Vitellius FXI.[1]

Spears of a largish F profile, depicted on the helmet plates from Vendel grave 14, are regularly depicted with the thong of an amentum along the shaft (fig.109(3), while in other warrior scenes from the same source, what are obviously barbed darts are shown with nothing more than bands marking the point of balance, (fig.109(4). Celtic warriors as late as the battle of Clontarf (1014 A.D.) carried "white hazel darts, flung with variegate silken strings",[2] and decumentary allusions to the amentum and its use, indicate at least a knowledge of the device right into the end of the Anglo-Saxon period.[3]

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1. BM. MS. Cotton Vitellius FXI f.2:- a lozenge-shaped plate pierced with a hole, halfway down the bent shaft.
2. Codah Gaedhil re Gaillaibh, 92.
3. See sections, V pp. 493ff., VI pp. 587ff.

Eck considered that a bronze hinge-like mounting from grave 284 at Vermand might have been used as a spear-shaft binding,[1] but it is difficult to see exactly how it may have been used. Mortimer noted two similar lengths of bronze spear shaft binding from a grave at Grimthorpe:[2] semi-cylindrical in section, 1.5 cms. across and about 28.0 cms. in length, with rivets to fix them in place. They might have been dismissed as shield binding, were it not for their limited length, straightness, and their position in the grave found one at the head and the other in a straight line at the knees. Other similar finds were noted from Garrowby Wold B, and Ormside.

Most spear-shafts would probably have been left merely smooth and polished <u>skafna aska</u>,[3] but others might have been painted either red or white, or some other colour.[4] Certain of the spear-shafts preserved in the Kragehul Moss deposit[5] have the upper part covered overall with a fine interlace-work of scribed lines, which indicate a clear date some time subsequent to the introduction of the entrelac to the northern reprertoire.[6] Some of the arrow shafts from Nydam have symbolic carved marks along their lengths, and probably such simple

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1. Eck T. (1891) pp.255-6, pl.xvii(20a).
2. Mortimer J.R. (1869) Notice of the opening of an Anglo-Saxon grave at Grimthorpe, Yorks.; <u>Reliquary</u>, IX, p.180, text fig. This grave may possibly be earlier than Anglo-Saxon times.
3. <u>Atlakviða</u>, 4.
4. Eg. Y. <u>Gododin</u>, 95; <u>Codah Gædhil re Gaillaibh</u>, 92; or Christiansen R.T. (1931) pp.237, 239.
5. Engelhardt H.C.C. (1897) p.5, pl.II-III.
6. Åberg N. (1945) Spjutsskaften från Kragehul Mosse; <u>Fornvännen</u>, 1945, pp.251-9.

carving might have been commonly added according to the taste of the owner. Since Roman times the spear-shaft formed the basis for the various battle standards and ensigns, and it seems probable that this custom was carried over into Germanic armies of the Dark Ages. Certainly by the time of the Hornhausen stone, the pennons and tassels which were to develop later into the feudal gonfalon, were already carried.[1]

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1. See generally Schramm P.E. (1954-6) II, p.643 ff. It is proposed to elaborate this point in a further paper.